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ADDRESS.

ADDRESS OF THE CHAIRMAN.

Read in the Section on Laryngology and Otology at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY E. FLETCHER INGALS, M.D.

CHICAGO.

I congratulate you upon gathering together on this occasion under such favorable auspices. Notwithstanding the deplorable circumstances which separate us from a large part of our *confrères*, your officers have secured a large number of papers for this occasion, which will be found of great interest, and which I hope will receive the thorough discussion they merit. Knowing that the meeting of the American Congress of Physicians and Surgeons in Washington would keep from us some who would like to attend, and that many of the best laryngologists and otologists in the country are, out of self-respect, absolutely precluded from membership in this ASSOCIATION by the antiquated and narrow policy which unfortunately still prevails, your officers have urged their friends to contribute to the success of this meeting by sending papers, even if they could not attend in person. We have, however, required that all such articles should be accompanied by abstracts that may be read, provided there is not sufficient time for the whole paper. When a few years ago some of us attempted to organize this Section, it was opposed strenuously by some of the members of the ASSOCIATION on the ground that there was too great a tendency to specialists in medicine, and also that the various Sections would tend to detract from the interest in the general meeting. These objections seemed well founded, but the progress of events enabled us after two or three years to overcome the opposition and the Section was organized with Dr. Wm. H. Daly, of Pittsburg, as Chairman and myself as Secretary. The following year we had about forty papers in this Section. This again brought down upon us the criticisms of some of our friends in the ASSOCIATION, but it did not dampen the ardor of those engaged in our specialty, and during the succeeding years this remained one of the strongest Sections in the ASSOCIATION, both in character of the work performed and in the number of men interested.

We must, however, regret that many of those who could furnish us results of most valuable scientific work are kept aloof by the traditional policy, which, although the best which could be devised in the bitter hostility which existed fifty years ago, has been the very means of perpetuating an absurd pathy which would have long since fallen into the shadows of oblivion, if the regular profession had not afforded its misguided adherents the constant opportunity to pose as martyrs.

This ASSOCIATION has done much for the cause of medical science in this country, but it has failed to engage the active coöperation of a large majority of the medical profession, and it has thus fallen short of accomplishing the magnificent possibilities which seem open before it.

A wide breach has occurred between this ASSOCIATION and some of our best friends in the regular profession; and this has been thoughtlessly laid largely to the men who are devoting their whole energies to some of the special departments of our art and science. This, I am entirely satisfied, is a mistaken idea. Indeed, I fully believe that the great relative falling off in the ranks of the pathists within the past few years which amounts to about 30 per cent. of the number of students graduated from the homeopathic schools, has been due to the greater wisdom coming largely from those same men, that has caused the profession to recognize honest work wherever found, and to ignore absurdities without raising them into prominence by discussion.

While fully realizing all that has been done, we can not help asking ourselves whether we are doing all that can be done to promote harmony and good will in our own ranks. The answer must be in the negative. Under the present policy of our ASSOCIATION it has been impossible to greatly increase our membership, and as a result we have to-day only about one-fourth of those who should belong to the ASSOCIATION and who, by a wise policy, might be induced to stand with us for all that the profession needs. I hope the members of this Section will by their acts refute the charge that specialists are trying to disrupt the profession, and that they will aid in every honorable way to secure the new order of things which some of us believe will make our calling more useful, which will bring our friends together with us, and which, I fully believe, would, within a quarter of a century, practically wipe out the pathies that now fret the earth.

ORIGINAL ARTICLES

ON TUBAGE AS ACCESSORY TREATMENT IN CERTAIN CASES OF SEPTAL DEFORMITY.

Read in the Section on Laryngology and Otology at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY PRICE BROWN, M.D.

TORONTO, CAN.

Deviations of the nasal septum are of such frequent occurrence among all civilized races that we need not wonder at the number and variety of methods practiced for their removal. Each method of operation is often eulogized by its advocates as superior to all others, and histories of cases are cited

as direct evidence of the truth of the statement. Still, while granting all that can be said in favor of the many ways of treatment, every operator will admit, I think, that cases sometimes occur in which mere operative measures are insufficient, unless supported by accessory treatment of a more than ordinary character. Judging from personal experience, I think this is particularly true of that class of cases, characterized by extensive adhesions between the septum and middle and inferior turbinated bones.

I do not refer to cases where synechiæ or cicatricial bands, due to inflammatory action, are stretched across the central nasal cavity binding the two sides together; but to those cases usually traumatic in their origin, in which the anterior end of the vomer, the lower part of the perpendicular plate of the ethmoid, and the triangular cartilage, unitedly forming the central portion of the septum are crowded over, and pressing directly against the turbinateds have produced osseous and cartilaginous union. These are cases in which the patency of the entire nasal cavity, subsequent to operation and during the process of healing, becomes a subject of the greatest importance.

In another class of traumatic cases the injury is confined chiefly to the nasal cartilages. The vomer and the ethmoid may be unaffected; but the crushing of the external nose may be so severe that during the process of internal repair the mucous membrane is extensively destroyed—the resulting cicatrization producing almost complete stenosis.

In both classes of cases we have in tubage a most valuable aid in the way of accessory treatment; and with the hope that other rhinologists will give it a more extensive and thorough trial I append the histories of several cases, which have during the last two years fallen into my hands for treatment. I am satisfied that in these cases, had I resorted after operation simply to sprays, the use of the cotton tampon, the ordinary rubber plug, brushing and similar procedure, the results either to patients or operator would not by any means have been of so satisfactory a nature.

Case 1.—November, 1892, Miss F. McD., aged 17 years. Her father and sisters had large Roman noses, and during childhood her own is said to have been of a similar type. At the age of 10 years, she had a severe fall, lighting on the bridge of her nose and effectually depressing it. This was followed by an abscess, which discharged a great deal of pus and eventually healed. Five years later she was taken to a surgeon in Vermont to have the nose elevated. He made an incision from the left inner canthus, down the angle of the nose adjoining the cheek and across the left ala. Then dissecting the soft tissues back, he transfixed the nasal bones with needles, and attempted to raise them to the normal position. The nose was returned and sutured, and the transverse needles left *in situ* for a time. Probably owing to the length of time which had elapsed between the periods of injury and surgical treatment, the result was not very satisfactory. The cicatrix had almost disappeared, but the bridge was only slightly raised.

When she came to me two years later it was largely on account of nasal stenosis. On examination I found the cartilaginous septum crushed down and completely distorted. Its position instead of being vertical had become irregularly diagonal. On the right side there was still sufficient mucous membrane to make a fairly free passage after sawing off the projecting cartilage. But on the left, which contained the bulk of the septum, there was almost complete stenosis. The cicatrization had destroyed the mucous membrane to such a degree, that a cocainized cotton probe could only be passed through the center of the choana, and that with difficulty. Posterior to the stricture, the lumen did not seem to be defective.

Retaining that portion of the septum which still acted as support to the depressed bridge, and preserving what little mucous membrane remained, I cut out the balance of the cartilage with saw and bistoury; as it was the cause of part of the obstruction, and was too unshapely to be utilized. On its removal, however, the soft alar tissue collapsed, closing in some measure the space produced by the operation. This difficulty was met for a time by the use of a hard rub-

Fig. 1. Not quite full size.

b.

Fig. 2 a.

Fig. 3.

d.

Fig. 4 c.

RHINAL TUBES.—Anterior ends of tubes to right; posterior to left. B is vertex of a, d is vertex of c.

ber plug; but whenever it was removed the choana would at once collapse. Dr. Grant's vulcanite tubes would probably have suited this case. Unfortunately I did not possess them; and so as a last resort, had a silver one made of a shape to suit the naris. It was narrower in the center than at either end, to secure it in position after insertion. During the time that the young lady remained in the city for treatment, I had the tube modified in form so as more

accurately to fit the passage; and for cleaning purposes instructed her how to remove and return the tube at regular intervals.

In March last after an interval of more than a year, the patient's father called upon me to report progress. He said that for several months his daughter continuously wore the tube I provided. But as it became loose, she took it to a jeweler and had another made after the same pattern. This she was now wearing. The choana was becoming more open, but she still required assistance in nasal respiration; and before having any further alterations made in the tube he would bring her in for examination. This, however, up to the present he has not found necessary.

Case 2.—February, 1893. Mr. N. McM., machinist, age 38. Mr. McM. has had chronic nasal and throat catarrh for years. He dates his trouble to a blow, breaking and deflecting the nose to one side, which he received in boyhood. The right nasal cavity was unusually wide, the septal cartilage presenting a deep concavity. The left naris was tolerably clear in upper portion, but not enough so to allow of respiration, except when the walls were held ajar; while the lower half of the front portion of the nasal cavity was obliterated by cicatrization. It was evident that it would be impossible to afford relief to respiration, without removing a portion at least of the dense cicatrix; the cicatrix removed, would be followed by another, unless a suitable instrument could be adjusted to the part and worn continuously for a long time. My first operation in this case was the reverse of successful. I excised sufficient of the dense fibrous tissue to make a free nasal opening, and adjusted an improvised silver tube. For a time it worked well, and the patient attended to it regularly and efficiently. By-and-bye he disappeared and I saw nothing more of him for a number of months. When he came back in December he said he had spent the summer and fall in Winnipeg. The tube after a time had been troublesome to insert, and for two months he had not tried to put it in. On examination I found that the whole wound had filled up again with cicatricial tissue. On consideration, I concluded to operate again the second time in a somewhat different manner. Instead of excising down to the floor of the inferior meatus, and making a wound so extensive as to prohibit the possibility of extension of mucous membrane over its surface, I excised only the upper part of the cicatrix, with the hope that the healthy mucous membrane of the superior meatus would have sufficient vital power to gradually cover the raw surface of the middle region.

After the operation, I inserted a part of a gum elastic catheter until I could get a suitable tube made. I had this variously modified until it assumed the shape of the accompanying Fig. 2, a and b. Through it the patient breathes more freely than he has done for years. He takes it out, regularly cleans it, and returns it. The concave side is the lower one. The bulge on the tube was placed to insure retention and at the same time to give width to the passage; while it presses towards the concavity mentioned as existing on the right side of the septal cartilage. The hope is that by wearing this or a similar tube for a year or two, the passage will become so open and the parts so endowed with new mucous membrane, that the patient will be able to breathe normally without any artificial assistance whatever. His throat catarrh has already disappeared.

Case 3.—August, 1893. Mr. T., medical student, age 21 years. Had originally a Roman nose. Ten years ago it was broken and depressed by a blow from a cricket bat; now it is straight with thickened bridge. Nasal breathing difficult, chiefly on left side; nasal tone of voice; catarrhal throat attended by constant hoarseness. Upper septum on left side, except at the summit, has united with external wall of the nasal cavity and is solidified. Lower portion has been broken and protrudes as a sharp upright spur—the two filling up the lumen and almost occluding it. Under cocain, I sawed out the spur, and removed a segment of the septum, cutting both sides of it, up to the free mucous membrane of the superior meatus. The parts were kept open by use of albolene tampons replaced daily. During this period several projecting nodules were touched by galvano-cautery or removed by chisel. After the first few days I substituted silver tubes in place of the tampons. They served a good purpose, but when in Washington in September, I succeeded in securing one at the surgical instrument exhibit of the Pan-American Medical Congress, which was much better suited to the case. I regret that I could not obtain the name of the originator. The photograph, Fig. 3, exact sign is here given. It was worn daily by the gentleman for several weeks. Then for a few hours only at regular intervals. Subsequently the intervals became longer, and when I last saw him, he had finally laid it aside—considering its further use unnecessary. His respiration was unobstructed while the throat catarrh, hoarseness, and nasal intonation had all been relieved.

Case 4.—February, 1894, Mr. P. B., age 18 years, was brought to me by his father, a leading physician of London, Ontario. He had a large prominent nose—the whole organ being turned somewhat toward the left side. The left nostril was freely open and the transverse diameter, opposite the central portions of the middle and inferior turbinateds, exceedingly wide. The right side of the columnar and triangular cartilages filled up the anterior naris, and pressed against the right ala. On separating the sides of the choana a probe could be passed easily along the floor of the inferior meatus; and also, when curved, from the front to the back of the superior meatus. The whole central part of the passage was, however, completely solidified by cartilaginous and bony union between the septum and the middle and inferior turbinated bones, for a horizontal length of about an inch, and height of half an inch. The naso-pharynx was covered by thick, tenacious, ropy mucus, which was very difficult to remove. The youth was pallid in color, and had been troubled with a harassing bronchial cough all winter. The only possible cause that could be assigned for the deformity was a severe blow from some hard substance, which he remembered to have received on the left side of his nose, a number of years earlier.

Dr. B., the patient's father, was under the impression that the best relief that could be obtained was by septal perforation. It is needless to say, however, that with such extensive adhesions, such an operation, to say the least, would be impracticable. After thorough examination it seemed to be a case in which, owing to the youth of the patient, advantage might be taken of the comparatively soft condition of the vomer and plate of the ethmoid; and hence, admirably suited for treatment by tubage after operation.

Under 15 per cent. solution of cocain, I sawed out as wide a section of the triangular cartilage as I could without producing perforation. Then with a thick saw cut through the bony adhesions between the septum and turbinateds, completely severing them. After hemorrhage had abated, I applied cocain again, and forced into the chink a flattened, thin, but somewhat wide silver tube. For the first twenty-four hours there was a good deal of maxillary neuralgia, but the tube retained its position. The second day it commenced to loosen and slip forward. Another tube was made somewhat larger, with a bulge on its outer surface, near the posterior end, to help to retain it in place. Before its insertion, a portion of the lower part of the middle turbinated had to be removed by galvano-cautery, as it threatened to fill up the passage. The lumen of the tube was narrow, not sufficient for full respiratory purposes. Still albolene could easily be forced through it by atomizer, and also along its superior and inferior sides. After remaining under treatment for several days, the patient went home with instructions to remove the tube for cleansing purposes, as often as required.

Three weeks later he came back for further treatment. For the last few days he had been unable to get the tube fully back into position. On examination I found some parts of the cut surfaces healing satisfactorily, and being gradually covered with mucous membrane. Some granulation tissue in the center required removal, but the general lumen was all that could be desired, and breathing through the nostril when the tube was out was easy. I had the same tube lengthened somewhat, its lumen slightly increased and the bulge for retention made a little larger. After removing the granulations it was again placed in position. It is represented in Fig. 4, c and d. When Mr. B. returned home I expected that in a few weeks he would be able to dispense with its use, and breathe almost if not entirely as well through the restored nostril as through the other.

April 27. I have again had a visit from Mr. B. There has been continuous improvement, free respiration, and cessation from suffering; but as healing is not yet perfect he will continue to use the tube at stated intervals for some weeks to come.

Besides these, there are a number of other cases, in which during the early periods of treatment I have used silver tubes to advantage; but as they

[1] I do not think the perforations are of any advantage, and they might possibly produce sepsis.

[2] Subsequent note: August, Mr. B. has not required to use the tube for the last two months. Healing and respiration are now normal, and the throat catarrh has ceased

bore no distinctive marks they are only worthy of a passing notice.

On looking over my case-book of private practice, for the year and a half covered by the history of the cases mentioned, I find a record of forty cases of deviation of nasal septum, sufficiently severe in character to require operation. Hence the number of cases requiring tubal treatment has been limited to 10 per cent.

In conclusion, I would like briefly to emphasize two points: 1, that our cases of septal deformity, whatever their origin, should not be treated according to any cut-and-dried rule; but that each case be dealt with distinctively upon its merits; 2, that in irregular cases, having their origin chiefly in traumatism, we have no better adjunct to successful treatment than that afforded by careful and discriminate use of silver tubage. Any good silversmith can mold that soft, non-corrosive, pliable metal into the required shape. Its smooth polished surface will give cool aseptic support and compression to the incised tissues, eminently favoring epithelial repair; while the lumen of the tube will allow a free passage of air, so essential to thorough cleansing as well as respiration. The possibility of the slipping of the instrument through the posterior choana can be guarded against by a proper oversight in the construction of the tube, and by duly warning the patient. In the number of times, which number must amount to several hundreds, that the tubes have been inserted, collectively, by all my patients, this accident never occurred but once. On this occasion it slipped a little too far into the passage; and while the family physician was attempting to extract it, the tube glided over the palate and out of the mouth.

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THE CAUSATIVE RELATION OF NASAL OBSTRUCTION TO LUNG DISEASE.

WITH THE PRESENTATION OF NEW MECHANICAL DEVICES FOR TREATMENT.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5–8, 1894.

BY CHARLES DENISON, A.M., M.D.

DENVER, COLO.

The mechanics of respiration, in conjunction with the varying degrees of blood pressure within the thorax, have for some time greatly interested me. I must refer you to my address ("Abnormal Intrathoracic Air Pressures," September, 1890) read before the American Climatological Association, for the considerable amount of details which would make this paper too long to introduce it here.

Briefly summarized, sphygmographic tracings were there presented of various pulses under varying conditions of intrathoracic pressure, together with certain facts and measurements of air pressure by the manometer and of air quantity by the spirometer, so as to make plain the following general conclusion, namely, that the blood and air within the nose or less rigid walls of the thorax, may be considered as two reciprocally acting fluids. If one can not get in, in normal pressure, the other will to a certain degree take its place. It was under the influence of this reasoning that what I believe was an original discovery was made, namely, that marked decrease of pulse tension during inspiration and increase during expiration can be utilized as a positive diagnostic sign for immediate intubation of the larynx or for tracheotomy in membraneous croup or laryngeal stenosis. A delicate tactile sense in feeling the pulse and a slowly breathing child are great helps to this important conclusion. Out of thirty cases intubated by me, I have demonstrated this diagnostic sign and followed its indication for immediate interference in I believe the three last of the ten successful cases.

A logical mind needs no stronger proof of the value of this sign or of the importance of the subject I have chosen for this paper, than that which may fairly be drawn from the combined tables of all the intubations or tracheotomies which have been performed, to-wit: That children operated upon die more from a previously or coincidently started *aspiration pneumonia* than they do from the disease or blood state which caused the laryngeal stenosis. Some of my cases have been wonderful illustrations of this suction power exerted upon the blood, because of the vacuum produced in the thorax by the interference with the ingress of air through the constricted larynx.

All the above is an argument by way of illustration, for the nose, though it is at the extreme end of the breathing tube, is as important a part of respiration as the air cells of the lungs. Because the mouth is interposed on the way is no proof that these two openings are normally supplementary to each other. They can not be, their functions and construction are so unlike.

Dr. J. A. Thompson (*Lancet-Clinic*): "Patients who are confirmed mouth-breathers or in whom the respiratory function of the nose is from any cause abolished, are sure to be the victims of laryngitis, trachitis and bronchitis. The membrane chronically inflamed, with its resistance to infection lowered, is much more apt to be the seat of tubercular disease than in those persons whose respirations are carried on normally through the nose." He further shows that the absence of the moisture contributed to the inhaled air in the nasal passages diminishes the absorption of oxygen in the lungs, which, to his mind, explains why patients with atrophic rhinitis, hypertrophics, etc., are so poorly nourished.

Bosworth attributes three functions to the nasal passages: 1, that of respiration; 2, an aid to phonation by acting as a resonant chamber; 3, as an olfactory organ.

There is evidently a purpose in the large expanse of the membrane lining those passages, in the generous blood supply to the same and in the abundant exudation of mucus from the rich glandular structures situated therein. That purpose is accomplished in the warming and softening of the air, in the sifting of all dust out of it, and so equalizing the air introduced in respiration. We used to believe the large amount of moisture ordinarily thrown off from the lungs in twenty-four hours was mainly from the lungs. Now comes an experimenter, Aschenbrandt, who claims to have demonstrated the source of this moisture to be largely in the nasal chambers. Just how much of the 7,000 or more grains of moisture daily thrown off come from this source, I will not pretend to decide. I simply give this evidence to show the great importance of the nasal passages as an essential part in the respiratory tract.

The effect of prolonged inflammatory action, such as catarrhal colds neglected, or one attack succeeding another, is not very different from similar congestions elsewhere, namely, an increase of connective tissue, except that the resulting obstruction tends to augment this effect locally and the blood once drawn into these affected parts is not normally expelled because of the suction in that direction. There is no doubt about the fact that obstructions at the nasal end of the breathing tract produce this suction influence in the naso-pharynx, and the perpetuation of a slight obstruction may in time produce more or less permanent injury in all connecting cavities or tubes, such as: 1, engorgement of the middle-ear space causing a certain amount of deafness with more or less closure of the Eustachian tubes; 2, the same hypertrophic influence in the lining of the ethmoid cells and lachrymal ducts with adenoid growths and polypi which flourish in the other unventilated parts of the pharyngeal and nasal cavities.

One has only to experiment with himself to get an idea of the varying conditions of air pressure to be noted in the naso-pharynx. For instance, after a full inspiration, while holding the nose go through the operation of swallowing, then do the same with the lungs as nearly emptied as possible; the impaction of the air through the Eustachian tube and in the middle ear is felt to be much stronger during the first part of the swallowing act with the lungs distended than when empty, and then during the last part of the act the descent of the pharynx, trachea and esophagus seems to give less of the suction influence when the lungs are distended than after a complete expiration.

This is an experiment with the nose entirely closed, but with lesser stoppages of the nasal tract even the frequent act of swallowing must correspondingly affect the naso-pharynx, for then the mouth must be closed. If one attempts to measure with the manometer the approach to a vacuum possible in the nose, he will find that a pressure represented by a very few millimeters of mercury, say three to ten, will seem sufficient to hold together the sides of the nasal passages at the outer orifices. So the stuffed-up head due to a "cold" or a series of them can be clearly understood as leading first to the hyperemia of the pharynx and nasal fossa and then to chronic pharyngitis and enlarged tonsils.

When we come to apply the same kind of reasoning to the farthermost recesses of this respiratory tract, we find that the larger spaces, the trachea and bronchial tubes, are held open by their form of construction, and the fortification of connective tissue around, that by the manometer the suction or inspiration power is equal to about fifty millimeters, *i. e.*, about half of the expulsive or impactive power. Is it not reasonable, however, to believe that even though so evenly and minutely divided as this suction power is in the air cells, an equal resistance to closure does not exist in the periphery of the lung? I have had the following experiment tried on myself, which any of you can verify, to show that it is the flexible air cells which must of necessity compensate for any obstruction to the entrance of air, via the trachea during inspiration; namely, breathe out all the air possible, *i. e.*, the *complemental*, the *tidal* and the *reserve* or supplemental air, leaving only the *residual* air in the lungs; then while the nose and mouth are closed make a powerful effort at inspiration. Meantime some one is percussing and listening with the stethoscope in the axillary space. Percussion will give a slight elevation of pitch and auscultation will show the movement of air away from the periphery during this inspiratory effort, the normal gradually returning so soon as the straining is relaxed and air allowed to enter the thorax. What has occurred? The more pliable and consequently more compensative alveoli have given up this residual air to supply the vacuum created in the stiffer and unyielding tubes within by this ineffectual effort at inspiration. Here it is that the compensative and equalizing influence of the blood circulation shows itself, which compensation is aided by the active capillary circulation—five times more so as I understand it, in the capillaries of the lungs than in the surface of the body. The sphygmographic tracings, previously here referred to, show how the blood is held back from being sent out of the thorax into the extremities. The pulmonary arteries not anastomosing while the veins do, the red oxygenated blood in these pulmonary veins is drawn back into arterial capillaries by such suction influences, whether due to cough or exaggerated inspiration or to obstruction anywhere in the respiratory tract above.

This explanation of Niemyer's, why a pulmonary hemorrhage, from an embolic or other plugging of a pulmonary artery, always gives the bright red, freshly oxygenated blood, serves well to impress the mind with an important fact pertinent to our present study, namely, that lesser causes, obstructive to the free entrance of air into the lungs, will produce proportionately less severe forms of congestion or engorgement. In fact, the pulmonary lesion may be in almost exact proportion to the obstruction to respiration. The determining cause being that obstruction, it follows that even slight degrees of constriction of the breathing tract, as in the nose, when perpetually operating, as deviated septa and hypertrophies of turbinated bodies do, may be the deciding causes of chronic pulmonary engorgements in the lung periphery. Especially will it be recognized that such a cause may be operative when, during the relaxation of sleep, lung resistance has been lessened by the existence of unresolved pneumonias—influenzas and catarrhal bronchitis. I have been of late so much impressed with the fact that nasal obstruction, with or without mouth breathing, is promotive of a large portion of the non-tubercular chronic diseases (especially asthma, fibrosis and pleurisy, with adhesions), that I will risk the assertion that these abnormal states in the lungs are very largely, in say 90 per cent. of them, perpetuated or caused by the nasal obstructions. As to the tubercular cases, tuberculosis may be a cause or a secondary effect, and the existence of nasal hindrance to free and healthful inspiration seems to me to be largely in excess in all this class compared with the average of healthy persons.

There are no statistics available, that I know of, to settle this question, but the experience of those of us who have dealt largely with lung cases and especially of you, gentlemen, whose duty it often is to straighten the "crooked paths" in nasal passages, ought to count for much in lieu of numerical data, toward the causative effect of this nasal obstruction to breathing. I shall be glad to learn if your experiences are confirmative of my impressions.

Through the kindness of Dr. Andrew H. Smith, of New York, I am enabled to present his "mechanical device for illustrating the movements of the lung in penetrating wounds of the chest," which may also serve two purposes here, namely: 1, to illustrate the compensating service of the circulating blood in the thorax, to take the place as I have before pointed out, of the deficient air inspired because of respiratory obstruction; 2, to illustrate the reverse effect, needed as a means of relief, *i. e., mechanically produced increased intrathoracic air pressure.*

This apparatus of Dr. Smith's is a bellows divided to represent the right and left of the thorax. In each half of this is a thin rubber bag connected by a tube with a joint trachea. The suction of the bellows upon the bags (lungs) within, is uniform and causes them to fill with its expansion. If the glottis is partly closed it takes more strength to expand the bellows, and under these conditions if air is let into the side, but outside the rubber bag, the other rubber bag only will expand, except during compression some air will come round from the unaffected or fully filled lung. Now, supposing we agree that the air which is let into one side of the thorax, outside the lung, shall represent the blood circulation, and that it gets there because it is drawn in to take the place of the air which ought but does not get into that lung. It is seen at once that the relative amount of blood in that side bears a direct relation to the non-entrance of air in that lung. There is a reciprocal relation between the inspired air and this induced congestion. Now we come to the second illustration, the method of relief. The above defect having been recognized and the opening being left, which allowed the air (or blood?) to enter the thorax outside the bag (lung); then increase the pressure of the air which the weak lung does contain by stopping up that bronchial tube and at the same time compressing the bellows. You thus see every part of this lung brought into use, and all the air inside the bellows and outside the bag driven out. This is the office of regularly increased intrathoracic air pressure during expiration. It is the principle in correct respiratory gymnastics which I have advocated for a long time—in perfect accord with the greater use of air in the high altitude climatic cure—and the principle which is used in several breathing tubes, notably the "Howe tube." But it has been only recently that I have succeeded in combining the automatic control of both an *inspiration* and an *expiration* valve in combination with *a chamber for medicated vapors* and in the convenient little pocket device I have here presented.

The office of this instrument is not only by its steady, vigorous and continuous use, to drive the surplus or stagnant blood in the thorax onward in its proper channels, but by pressure on the hypertrophied linings to bronchioles and alveoli, to compel the reception of oxygen from the air once inhaled, as well as to produce such antiseptic or healing effects in diseased areas as can be done by vaporizable oils and salts conveyed in the inspired air.

The pressure used is or should be the utmost which is agreeable for a given individual, enough to close the entrance valve with a click at the beginning of expiration and to redden the face with the effort. The results in pulmonary fibrosis and all these obstructive conditions are very gratifying.[1]

Reference can be made in corroboration of the above to the article of Dr. George F. Hawley in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, May 12, describing "A New Apparatus for Nebulizing Non-volatile Medicaments, for administering the same through impacted air as a medium by the process of forced dilatation instead of inhalation, spray or douche." The effect of such increased pressure within the cavities treated is so much

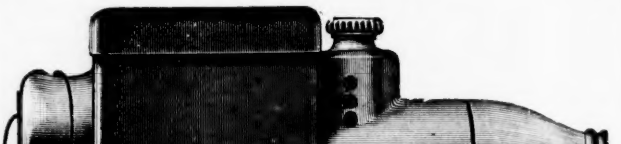

Figure 1.

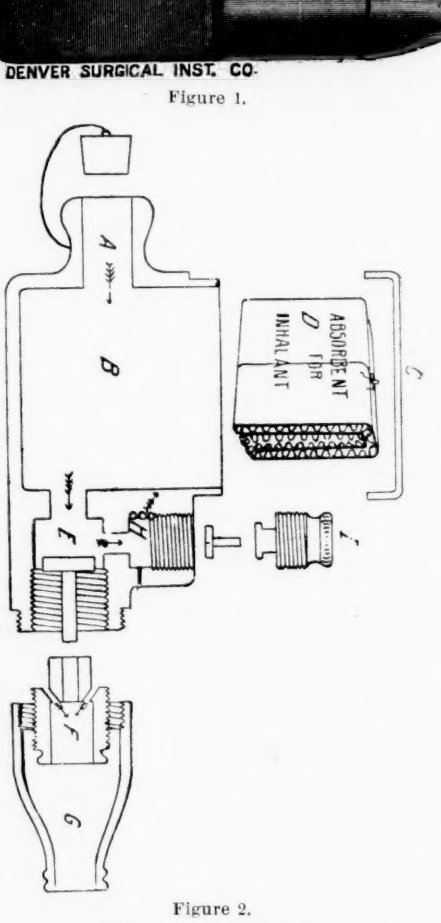

Figure 2.

DESCRIPTION OF MECHANISM.

The air enters the inhaler through nozzle "A," which is purposely made for the possible attachment of a rubber tube connected with an oxygen tank, any desired vaporizer or gas generator. In the box "B" covered by cap "C" is the Absorbent "D," made of corrugated blotting paper a little smaller in size than the inner caliber of the box. The inlet valve "E," governed by screw head "F," may be reached by unscrewing the mouth-piece "G," from the instrument. This inlet valve closes with expiration so that the inhaled air has to go off through the exit valve "H," which in turn is made adjustable by screw top "I." This constitutes the most important feature of this device. By the control of the exit valve, from 1-10 to 6-10 open, the tension of the air in the lungs may be increased at will from an easy to a difficult use, according to the need and ability of the user.

DIRECTIONS FOR USING.

After the adjustment of the valves, according to the case, (or as usually used, with inlet valve "E" ¾ open and outlet valve "H" ¾ shut) the Absorbent "D" in inhaler box "B," being semi-saturated with the Inhalant, and the plug to entrance nozzle "A" being removed, draw long full breaths through the mouth-piece "G," the chest meanwhile being expanded and shoulders thrown well back. Then, without removing the instrument, exhale into it with force so that the entrance valve "E" closes with expiration, and so continue to exhale till all the air possible is removed from the lungs. Repeat same way for three to five minutes during each of eight to twelve hours of the day. Vary the renewal of the remedy once or twice a week in chronic tubercular or fibroid lung cases, or as indicated by the use of other remedies than this Inhalant, if such are prescribed by the patient's physician

[1] This expiration pressure will vary from twenty to seventy millimeters as gauged by the manometer for different invalids or healthy persons.

opposed to the suction influence, due to obstruction of which we are now speaking, that there is nothing surprising at all in the good resulting from such method of treatment. It is in exact accord with the proper use of the inhaler and exhaler described above. But simply to get rid of the results of obstructed inspiration, some one will say, is not doing what we ought to do, *remove the cause—the nasal obstruction*. Exactly, and that is the reason I am not going to say much about another little device I here present called the "Spirodom," made in Bridgeport, Conn., and calculated to compel the wearer to breathe through his nose while asleep. One is not required to undergo the discomfort and vexation of wearing such a thing if, as is possible in nine out of ten cases, the obstacles to nose breathing are removed.

A whole discourse could be written upon the etiology of septum deviations. But I have neither the time or intention to try to exhaust that subject or speak of their various treatments. The object here is rather to deal with the pulmonary results. Suffice it to say that, according to Zuckerkandl, the superior

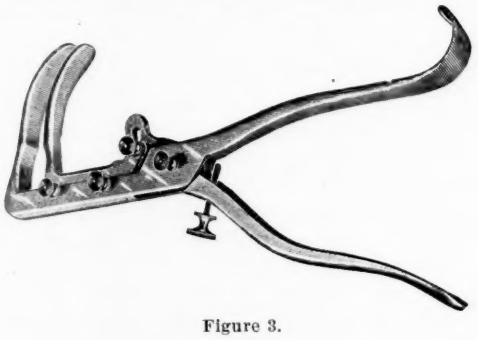

Figure 3.

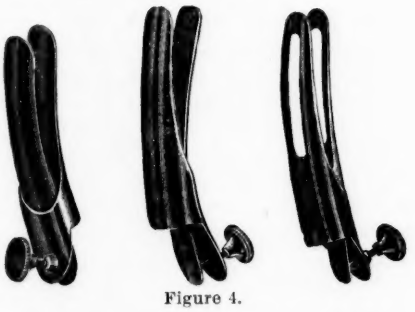

Figure 4.

races show more deviations than the inferior. Again, the cartilaginous deviations probably exceed the bony, and Morell Mackenzie (p. 300, "Manual of Diseases of Throat and Nose") found in 2,152 skulls in the museum of the Royal College of Surgeons, that in 77 per cent. of them there were more or less unsymmetrical positions of the septum. In these athletic times, with base ball, foot ball and boxing so popular, it is no wonder that there is a considerable predominance of nasal deformities among men. The five cases I had chosen to present to you of lung disease referable to nasal obstruction were none of them from the gentler sex. I will not tax your patience by giving detailed histories. They were characterized by hemorrhagic tendencies to start with, a tendency to flat chests or retraction from pleuritic adhesions, they were non-tubercular so far as microscopic examination of the sputum could show and in one case the non-tubercular nature was thought to be proven by the high power microscopic study of the blood according to Dr. Ephraim Cutter's method. They were all mouth breathers during sleep at some time during the course of their illness. Two had nearly total occlusion of one nostril (bridges across the cavity) while all had hypertrophied turbinates and deviated septa sufficient to make these lesions causes of the fibroid and atalectic tendencies in the lungs. As is usual in these cases the spirometrical record fell a little short of the healthy average while a pretty good manometer record was shown; and in two of these cases the respiratory sound at the apices, as heard with the stethoscope, was decidedly influenced as to quality, by the nasal obstruction. The removal of that hindrance to normal nasal breathing, the employment of compensatory lung gymnastics with climatic treatment were and are still the means being successfully employed in the cure of these cases.

The time already consumed prevents the discussion here of the various methods of surgical or topical treatment of these obstructions. I will simply add my mite to the already multitudinous surgical armamentarium for this purpose, and present the accompanying *vomer straightener* and the *right and left nasal dilators* which I have lately devised and which have been made for me by the Denver Surgical Instrument Company.

I had never seen the Adams' forceps and did not know of Gouley's septum splint when I devised this vomer straightener. However, they are all enough dissimilar to be considered unique. This instrument I present has curved nostril bars of steel, which easily fit the average of nasal canals and whose arms are controlled for any desired approximation by a screw in the handle to limit the closing. The power is the same lever principle used in my rib-cutter and is sufficient to overcome any obstacle or deflection which may be present. Oval side curvatures, displacements from fracture, or unusual hypertrophies may all be crushed to the desired normal thickness, which in many cases is considered preferable to the tedious, and to the patient, vexing and painful process of sawing or drilling away these obstructions.

Afterward the right and left nasal dilators come into use, designed to hold the passages open, till that openness becomes patent. These are made long and of light strong material and with side-screw adjustment, so that a patient can both introduce them daily for a while and gauge their pressure to what he can stand.

I have also had these dilators made with fenestrated sides (see single illustration of the right one) for the separate use of guarding other tissues than those intended to be cauterized when deep-seated hypertrophies are sought to be exposed to view.

The use of these devices as septum splints, substitutes for some forms of plugging and to obtain desired room for deep cauterizing, it is hoped will be as satisfactory in the hands of others as it has been for a limited period in those of the writer.

An Argument against the use of Boiled Water in Times of Cholera.—The Russian moujik, or peasant, is very much of a fatalist in respect of measures for the prevention of epidemic diseases. A recent letter from Minister White, on cholera at the Russian capital says, in effect, that "the moujik is in the habit of remarking, when advised to use boiled water only, as a beverage, that if Almighty God had intended him to use boiled water all the rivers and lakes would have been filled with water of that sort."

THE USE AND ABUSE OF COCAIN.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5–8, 1894.

BY D. BRYSON DELAVAN, M.D.

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According to the law which requires that every positive must have its negative, and every high light its shadow, it appears that all good and useful things must have their antithesis. Of nothing is this statement more true than of drugs. Thus, alcohol is at once a life-saving stimulant and the curse of the world. Opium, the salvation of thousands—the destruction of the power and progress of nations. Probably no drug has ever been discovered of which this is more true than of cocain. Mild in action, seductive in influence, treacherous in effect, it weaves a network of silken threads about its willing victim and leaves him of all men the most helpless.

When the discovery of Köller was first made known, it was natural that the desire for new information regarding the effect of cocain should have led to much self-experimentation and more particularly so because of its apparent harmlessness. The number of cases among physicians in which the habit was formed and the victim ruined from this ignorant use of cocain was startling. Later, the drug was prescribed by physicians for their patients. It was especially popular as a cure for coryza and a panacea for hay fever. Placed in the hands of a neurotic patient it is not strange that it should soon become indispensable to him. The strangest episode in the whole history of cocain is that certain medical men who have become its victims have been the very ones to disclaim its harmfulness, to freely prescribe it, and to recommend its use in their published works. As to this charge the rhinologist has much to answer for. Under his advice the patient has used it as a nasal spray, and has continued it, until the habit has become established and the spray has been exchanged for the hypodermic needle.

More recently cocain has been used by the manufacturers of patent medicines. Catarrh snuffs, throat lozenges and various other preparations containing it are urged upon the willing public. The general consumption of the drug has become very large and its use extensive. There seems to be no section of the country where it has not penetrated. Institutions for the reform and cure of the alcoholic and opium habits now advertise to cure the victims of cocain. The testimony of intelligent physicians generally, and the writer has questioned many from all parts of the United States, is to the effect that the evil has grown to serious proportions. I have, therefore, thought fit to bring the subject before this meeting, in the hope that an earnest protest might be made by the representative association of this country, against the abuse of the drug cocain. It is not necessary to go into the details of the question, for these are already painfully familiar. We all know the story of cocain from beginning to end. We know the great value of the drug when properly used, the peculiarly delightful effect which it seems to have upon many persons, the recklessness with which it has been prescribed and the baleful effects which have followed its over use. Is it not time, then, that we who have in part been the cause of this state of things should give our attention to the subject?

In view of the present state of the matter, the following propositions are offered:

1. Cocain, one of the most useful of drugs, is capable of being more harmful than even alcohol or opium.

2. The use of cocain is increasing to a serious extent.

3. For this the medical profession is largely responsible.

4. It is the duty of the profession to guard the public by every proper means against the dangers arising from the use of cocain.

5. To this end, it is desirable that this ASSOCIATION place itself on record as distinctively discountenancing the careless use of cocain: *a*, by the manufacturers of proprietary medicines; *b*, by the general public; *c*, by the general profession; *d*, and, lastly and particularly, by the Department of Rhinology, which we represent.

PSEUDO-HYSTERICAL APHONIA.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5–8, 1894.

BY F. B. EATON, M.D.

PROFESSOR OPHTHALMOLOGY, OTOLOGY AND RHINOLOGY MEDICAL DEPARTMENT UNIVERSITY OF OREGON; OPHTHALMIC AND AURAL SURGEON, GOOD SAMARITAN HOSPITAL.

PORTLAND, OREGON.

Typical hysterical aphonia is described in our treatises as a form of bilateral adductor paralysis of the larynx, usually of neurotic origin; sometimes more exactly, as paralysis of the lateral crico arytenoid muscles. As such, its etiology, symptomatology and treatment, as generally accepted, are familiar to all laryngologists. Some writers describe associated laryngeal conditions, such as hoarseness from acute cold; others loss of power of articulation. The inference is that the neurotic feature is not the only etiologic one. Indeed, many cases of this affection appear to be the result of a number of abnormal factors, though the prominent indication to be met and the one most influencing the physician in his attitude toward the complaint is the functional, hysterical, nervous one; it overshadows all the others, and treatment is directed toward its removal too often without due consideration of other important constitutional and local conditions. I am satisfied that the chief cause of many of these cases can be found in the upper respiratory region without doing violence to facts, or giving a disproportional prominence to the influence of any abnormal conditions of the nose or naso-pharynx. In other words, such cases may be regarded as primarily of nasal origin, the aphonia being the result of reflexes which are not fully understood though recognized. The term, pseudo-hysterical aphonia, is not scientifically correct, but I have ventured to employ it as descriptive of the main idea I wish to convey in this paper. Such a case I have had exceptional opportunities of studying, and I shall therefore give its history somewhat in detail:

Miss L., age 18, a relative of my own, came under my care in April 1892. Had always enjoyed robust health, parents healthy, good family history. When 13 years old she had severe coryza and much nasal discharge. A year later her voice began to "break" in singing high. Later on she lost her singing voice, "note by note," and had to sing alto. Finally she gave up singing, but made frequent efforts to regain her high notes; and as she expressed it, "one day I found another voice, but could use it only very weak and very high." About this time she experienced difficulty in

talking. At first it was only an effort; she had "to try to get the words out," and at school in order to avoid this effort she purposely allowed questions to go by without answering. She could make a loud sound easier than a soft one. When she tried to speak with little sound, her "voice would not come," and when she tried to sing in the new high voice this made the talking voice more difficult to produce, and whistling had the same effect. There was no pain, and speaking gave none, but the voice broke and there was a helpless feeling of inability to use it. When 16 she began to have "a falling down feeling in the throat" with some aching, and she then told her sister that these sensations were in the palate.

All this time she could talk by making great effort, and at school she obtained permission to speak very low. The nasal trouble was less than when she was younger.

Shortly after she was treated by a specialist who pronounced the trouble to be located in the vocal chords, though she told him she was sure it was in the palate. He cauterized the larynx daily, later every alternate day, and after each application she was better for some hours. But now aching referred to the palate became a prominent symptom, in spite of the treatment the voice steadily deteriorated and in six months she ceased to attempt to talk and returned home. Here, the family physician cauterized the throat for a follicular pharyngitis.

She now came under my care. I found a strong robust young woman of placid temperament. She had not made a vocal sound but on one occasion for three months. Patient admitted that cold in the head always made the voice worse, as well as nervousness, but thought she breathed easily through the nose. The larynx appeared perfectly normal with one exception, the chords could be approximated closely but the left lagged slightly and was further from the middle line during respiration. There was chronic post-nasal catarrh and moderate chronic swelling of the turbinated bodies, the middle ones being moderately enlarged. The vestibules were very small, and breathing moderately obstructed.

I made a diagnosis of hysterical aphonia and gave strychnia and quinin, the former in gradually increased doses, and applied a mild solution of zinc chlorid to the larynx at intervals. Later I applied a twelve cell current to the pneumogastric and larynx externally, and touched the chords with closed forceps, evoking thereby a cough with vocal sound. The use of a faradic current externally enabled her to use her voice moderately, but it would come and go, always being restored by the current for a day or two, but lost if wearied at all. Still later, after a month of treatment, the voice remained moderately strong. I learned, however, that menstruation occurred every three weeks, and uterine treatment was carried out by a brother physician. During the summer the condition became worse, the aching pain in the palate returned, and my patient rebelled against the strychnia, insisting that while it stimulated her larynx, its after effect was bad, and that the only way she could regain any use of her voice or relief from pain was to rest the larynx. In this she was undoubtedly correct.

Upon my advice, when in San Francisco, she consulted Dr. Thos. F. Rumbold, who gave as his opinion that while there were some hysterical symptoms, the main cause of the aphonia was the catarrhal inflammation of the nose and naso-pharynx, the effect of which had been to produce reflex anemia and paresis of the soft palate, and inhibition of the action of the laryngeal muscles. Paresis would hardly be a correct term to apply to the observed condition of the palate, except in reference to the vasomotor influence resulting in marked anemia. As far as motor reflex is concerned, there was no absence of distinction between the anterior and posterior pillars of the fauces, such as seen in some nasal cases. There seemed rather to be an increased motor reflex, a *quasi* spasm of the palate, referred to the levator palati muscles which with the azygos uvulæ are innervated by a descending palatine branch from Meckel's ganglion, which also supplies branches to the middle and inferior turbinated bodies.

His prognosis as to recovery of the voice was favorable, and he advised treatment mainly directed to the nasal passages. This he began himself with the spray of warm vaselin, which, however, had to be used with very little air pressure, the nasal fossæ being in a very hyperesthetic condition. This treatment I carried out myself later, but during the chilling humid Oregon winter which followed, my patient was in every respect worse. The mucous membrane of the fossæ, especially in the upper portion, was acutely painful on the occasion of every fresh coryza, as was also the aching "pain" in the palate. More than a very moderate use of the voice resulted in the necessity of whispered conversation, and for a time there was complete aphonia. At times there were attacks of chilliness, followed in about an hour by a condition of stupor which lasted about half an hour. During such an attack the patient appeared to know nothing of what was going on about her, nor could she be roused. When questioned, she declared that the pain in the nose and palate caused the stupor and chilliness.

There were clear symptoms of hysteria some of which, while intensified by, could not be attributed to, her ailment, such as capriciousness, rapid changes from depression to cheerfulness, lack of healthy interest in her surroundings, inability to apply herself usefully, and little self resource. Knowing the nature of her early training, the indulgence of her parents and her disposition, I state advisedly that the young woman was hysterical, using the term as descriptive of a psychosis and of mental habit. She had some dysmenorrhea, and for this the uterine canal was curetted and otherwise properly treated with no beneficial effect as far as the nasal and vocal symptoms were concerned. The use of the vaselin spray, however, had to be stopped, since it appeared to aggravate the nasal inflammation.

In the meantime the patient's brother, aged 24, applied to me for treatment of his long standing asthma. I found some hypertrophy of the turbinated bodies, a hyperesthetic condition of the mucous membrane similar to but not so marked as that of his sister. With the advent of spring, 1893, treatment of the young lady by vaselin spray was cautiously renewed by Dr. Rumbold, who also applied the galvano-cautery and counseled me as to future treatment. During the summer I lightly cauterized the middle and inferior turbinated bodies, thoroughly, the result being in three months a restoration of normal breathing on the left side, and nearly normal on the right. All the symptoms now gradually improved, so that my patient has had little trouble during the past winter, being able to talk easily, but liable to suffer still from prolonged use of her voice, which will probably never be perfectly strong.

It is worthy of remark that while she can sing without words, very softly, and obtains relief thereby, talking is more difficult, even in a low voice. This she attributes, and correctly, to the necessity of using the palate in articulation more, and in a different manner than when singing in alto register. A coryza will still produce some aching of the palate, and she says that if she worries over this, slight symptoms of stupor sometimes come on. She also informs me that when her voice "is strong, it feels strained; when weak, it is easy;" a paradox which has some weight, for she is sure that "when my voice is strong but feels strained, if I practice my voice softly, singing low 'breathing' notes, this relieves the strain."

What I wish to emphasize concerning this case is: 1, the over-use of the voice in childhood; 2, the gradual onset of the aphonia, which has been partial rather than complete, truly adynamic, since the power of speaking by effort is present; 3, the evident objective and subjective symptoms of anemia and paresis of the soft palate; 4, the existence of mild hysteria; 5, the improvement of all symptoms when nasal stenosis was relieved, while all nerve stimulants aggravated them. Hence I conclude:

1. That over-use of the voice, nasal and post-nasal catarrh, together with hysteria, may collectively cooperate to cause aphonia.

2. That cases of so called hysterical aphonia may result chiefly from disease of the upper respiratory region, the neurotic features being subordinate, and that grave injustice and injury may be done the patient in such cases by the ordinary stimulating and irritating local treatment of the larynx.

To Dr. Rumbold, through whose experience and counsel the true nature of the case was rendered apparent, I take this opportunity of expressing my obligations.

DEFLECTION OF THE NASAL SEPTUM AND ITS SURGICAL TREATMENT.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY E. A. SPILSBURY, M.D.

LECTURER ON LARYNGOLOGY AND RHINOLOGY, TRINITY MEDICAL COLLEGE; SURGEON TO THE THROAT AND NOSE DEPARTMENT, TORONTO GENERAL HOSPITAL.

Deflections of the septum, either as a result of traumatism or inflammatory action, are probably the most frequent of the exciting causes of catarrhal inflammation in the nasal mucous membrane. Consequently, it becomes a matter of considerable importance that we should thoroughly appreciate, not only their method of development, but also the nature of their action upon the lining membrane of the nasal cavities, as well as their influence upon its respiratory functions. In health, we find the nasal septum presenting simply as a bony and cartilaginous wall, dividing the nasal passages into two symmetrical cavities. In diseased conditions, we find present in this structure certain abnormalities of contour, which undoubtedly have a marked influence in the production of an ordinary catarrhal inflammation. The earliest investigators attributed deflections to excessive growth of the septum, as a result of which it became too large to fit in its bony framework, thereby becoming warped. This theory may account for a certain number of cases, but the great proportion of cases requiring surgical interference that have come under my care, have had a clear traumatic history. Sir Morell Mackenzie in an examination of 2,152 skulls, with the bony septum entire, in the museum of the Royal College of Surgeons, found 76 per cent. presenting more or less deviation; 38 per cent. to the left side, 28 per cent. to the right, while in the remainder it was irregular. When it is remembered that a large proportion of cases as seen in practice present the deflection chiefly confined to the triangular cartilage we see that the percentage must be even larger than that given by Mackenzie. Delavan has found among European races well marked deflection in 50 per cent. of several thousand crania examined. In cases of deflection the cartilaginous or bony septum, or both portions are simply bent to one side, the cartilaginous portion usually being the most involved; the deformity causing enlargement of one nasal chamber at the expense of the other. In most instances of deflection of the septum there is also thickening, especially at the lower part of the convex surface. The deflections are sometimes double, the convexity of one bend presenting in front on the one side, and the convexity of the other bend presenting further back on the opposite side, thus forming a double deviation resembling in shape the letter S.

In cases of fracture I have found that the cartilage is the part of the septum most frequently broken. Next in order comes the perpendicular plate of the ethmoid, its articulation with the vomer being the usual seat of fracture. The vomer is very rarely influenced by the concussion, its anterior edge being posterior to the bones of the face, and the cartilage yielding to the force of the blow. The causes of this deformity are obscure, and various theories have been advanced to account for its occurrence. In regard to those deflections which are due to fracture of the septum, of course there can be no question, they are due to a direct blow upon the nose. When we undertake, however, to inquire into the causes of the S-shaped or unilateral deviations from the middle line, a wide field for discussion is placed before us. Morgagni was the first to advance the view that these deflections are due to excessive development of the vomer. This theory was subsequently advocated by other investigators and I think it would account for a great proportion of these cases. With every regard for the various theories, I think clinical observation teaches us that traumatism is by far the most frequent direct cause of septal deformities. Where the patient is conscious of obstruction in one side of the nose, the trouble is not infrequently dated from a severe blow or fall on the face. This coupled with the fact that men are three or four times as frequently affected as women and that boys are more liable to blows on the nose than girls, indicates very strongly the probability of a traumatic element oftener than is usually supposed. I have observed, moreover, that women relate more precisely the history of a bad blow or fall upon the face, as if, the event being comparatively rare among them, they took more notice of it; while with men, a frequent answer to the interrogation is that they had the average amount of knocking about the face at school. In these cases I consider it sufficient to assume a fracture of the septum to account for all the appearances. When the deflection is great, the most prominent symptom is twisting of the nose to one side, usually to the side opposite from that affected. This deformity is sometimes very marked from bending to the side of the anterior edge of the cartilage, even though there is but little deflection farther back. More or less difficulty in nasal respiration is experienced according to the amount of obstruction. Interference with the free passage of air through the obstructed side causes the secretion to collect behind the convex portion and in the nasopharynx, giving rise to post-nasal catarrh, and I have frequently observed that pressure upon the external wall, especially when associated with exostosis, induces atrophy of the turbinated body of that side while the inferior turbinated body of the other side, is usually found to be hypertrophied; and thus it often happens that patients find respiration easier through the cavity which upon inspection seems most obstructed.

As a further consequence of this obstruction, the voice acquires a nasal twang, and mouth breathing becomes necessary with all its attendant evils. There is no disease with which deflection of the septum is liable to be confounded if a careful rhinoscopic examination is made. Most of the evil results of the obstruction can be remedied by a suitable operation, and the external deformity may be largely removed if the nasal bones have not been crushed so as to cause depression of the bridge of the nose. As to the kind of cases requiring surgical interference, it is undoubtedly bad surgery to hold that every deviation from the middle line in the position of the septum demands treatment, and it is probably equally faulty to assume that surgical means always be adopted, even when one nasal fossa is almost completely occluded. I have found by clinical experience that many individuals tolerate partial and sometimes nearly complete nasal obstruction on one side without any inconvenience whatever. It is only when actual symptoms are produced in consequence of pressure on contiguous surfaces or interference with nasal respiration that operation is demanded. Whenever, for instance, there is a chronic laryngitis,

with enough nasal stenosis to cause even a partial buccal respiration; whenever there is paroxysmal sneezing or hay fever, even though there be but little interference with nasal breathing; whenever there is post-nasal catarrh or Eustachian occlusion; whenever there is dry rhinitis of the open fossa, we may operate with perfect propriety, and with the best hope of success. The essential feature of deflections of the nasal septum which demands treatment is the stenosis, as from this arises all the sequelæ and complications which accompany them. Where the deformity has occurred as the result of a fracture, this may be accomplished either by removing the projecting portion of the deviation, or by restoring the fragments to their normal plane. The earliest effort (1750) in this direction is the method of treatment by which the patient is advised to push the septum firmly over to the opposite side several times daily; but unfortunately this simple plan is seldom capable of accomplishing any good. About a century later (1845) Dieffenbach advised that the projections be sliced off with a knife, but this proved rather unsatisfactory. In 1851 Chassaignac recommended a form of treatment especially applicable to deviations with thickening of the cartilaginous septum. This consisted in dissecting up the mucous membrane and paring off the superfluous tissue. It is not easy of accomplishment, but in certain cases no better operation perhaps could be devised. Blandin, of Paris, first advocated punching out a portion of the septum and establishing free connection between the two nares, but this operation rarely affords the desired relief and can not be recommended. An easy operation, and one which has given me great satisfaction in several cases of simple cartilaginous deflection, is an incision through the projection following its long axis. Considerable hemorrhage takes place as soon as the incision is made, but it soon ceases. The end of the finger being introduced into the nostril, the septum is forcibly pushed beyond the center and maintained there, by packing the previously obstructed nostril with carbolized oakum. The cut edges over-ride each other, and after a couple of weeks are firmly united.

The oakum plugs should be changed daily and the cavities sprayed with Dobell's lotion or a solution of permanganate of potash, gr. i—℥i. Dr. Roberts, of Philadelphia, devised an operation in which a long incision is made obliquely or horizontally, as required, through the septum from back to front along the line of deviation or projection. This is done with a knife introduced into the occluded nostril. If the bony septum is deflected, it is divided by a chisel in the same direction. A long steel pin is then introduced into the normal nostril, and its point passed, with about two-thirds of its length, through the septal cartilage, a short distance above and in front of the incision. This brings the pin into the occluded nostril. Pressing the end of the nose and septum, according to the character of the case, into its proper position, the "head-end" of the pin is brought close to the anterior part of the septum, thus causing the "point-end" or portion in the occluded nostril to lie across the incision and adapt itself lengthwise along the surface of the septum beyond the incision. The pin is then pushed in up to the head, and its point is thus deeply imbedded in the soft tissues of the septum, and upper and posterior part of the occluded nostril. It doesn't make much difference where the point is fastened so that it is firmly fixed and holds the incised septum straight. Sometimes two pins will be required to correct the deformity. In such cases the second one is inserted, not from the mucous surface within the nostril, but from the cutaneous surface of the dorsum of the nose just below the nasal bone. The operation is a bloody one, because of the vascularity of the parts and because it will be useless unless the incisions are very free, so as to take away all resiliency of the cartilage. The pins are left in position two weeks. I have operated in several cases by this method with favorable results. The patient is subject to but little inconvenience, and the cavities can resume their functions at once with no disfiguring apparatus apparent. A small square of court plaster will cover the end of the external pin, which should have a flat head. The other does not show, as its head lies within the nostril. Another method of rectifying deflection of the septum is to forcibly return it to its normal position by means of heavy forceps, as devised by Adams of London, but never having looked upon this instrument with favor I have not given Adams' operation a trial. In those forms of comparatively slight deflection with considerable thickening of the prominence causing partial stenosis, the simplest method I have found, in dealing with such cases,is that devised by Bosworth of New York. It consists in cutting off with a saw specially constructed for the purpose, the protruding portion, together with its covering mucous membrane.

The saws are two in number—one cutting downward and the other upward. The steel portion is about five inches long, the anterior half serrated and probe-pointed, while the other carries a large wooden handle at the proper nasal angle. By this means the hand is kept away from the field of vision during the operation. The mucous membrane having been well cocainized with a 20 per cent. solution soaked in a tampon of absorbent cotton, the saw is introduced either above or below the protrusion as may appear more convenient, and rapidly cut through, care being taken to make a straight cut without bending the instrument. The bleeding is sometimes very profuse, though it generally ceases as soon as the operation is completed. It is of great importance, in removing these projections, that a thoroughly smooth surface should be left, for when a jagged uneven surface remains the result is unsatisfactory, and the period of healing occupies an unnecessarily long time. Recently, I have adopted a new operation for the worst cases of deflected septum, whether cartilaginous only, or bony and cartilaginous combined and with very favorable results. The operation is that of Delstanche, of Paris, and the set of instruments consists of strong crushing and cutting stellate septum forceps, septum clamps, and handle or tightener. The clamps are three in number, each consisting of two blades lined with rubber, and sliding on a square bar. The handle is also used to separate the blades of the clamp when removal is required. The patient being under the influence of chloroform the stellate blade is passed into the open nostril to the required position, and the flat blade passed into the obstructed nostril to a point opposite; the blades are then locked as with obstetric forceps and pressure exerted, thus crushing and cutting the septum. This is repeated in two, three or more places, until all resiliency of the septum has been overcome, when the index finger can easily be passed up the occluded side, and the clamp then adjusted in position. In tightening

the clamps, care should be taken not to exert too much pressure as it would interfere with the nutrition of the seat of operation and probably give rise to sloughing. Frequent cleansing should be carried out by means of a spray of Dobell's solution or other antiseptic wash. The clamp should remain in position for three or four days, after which I use plugs of carbolized oakum, as they are more cleanly than hard plugs of ivory or wood and exert sufficient pressure to hold the part in the required position. They should be changed at least once daily. In some cases it will be sufficient to plug only the formerly obstructed side with the oakum, after removal of the clamp. The evening temperature may rise above 101 degrees on the second and third days after operation, but soon subsides. The three following severe cases of deflected septum, all in male patients, and of traumatic origin, which I have recently operated upon by Delstanche's method with the most favorable results, both as regards the nasal stenosis and the facial deformity, have satisfied me as to the efficiency and value of this operation:

Case 1.—A. W., age 21, consulted me, Oct. 26, 1892, for complete obstruction of the right nostril and catarrh, and expressed himself as desirous of undergoing any operation that would give him relief from the distress he experienced at not being able to breathe through the right side of his nose. At about 5 or 6 years of age a severe fall upon the face had broken the nose, nothing having been done at the time to set it, so that from that time he could not breathe through the right nostril properly, and this difficulty increased in after years, until almost complete obstruction existed. Upon examination I found the right nasal chamber almost entirely occluded by deflection of the septum in both its cartilaginous and bony portions, and of undoubted traumatic origin. The left inferior turbinated body was greatly enlarged by puffy hypertrophy, yielding easily to pressure of the probe, and it almost filled the large concavity caused by the deformity of the deflected septum. In this case as there was so much inflammatory thickening of the projecting portion into the right nostril, I removed a piece about an eighth of an inch in thickness with the saw, in order to obtain space for the introduction of the flat blade of the forceps, as well as with the view of obtaining a better result after crushing. The blades of the forceps being placed in position in their respective nostrils, the anterior portion of the deflection was crushed and cut; this was repeated in two or three places back to the posterior part of the deviation, after which all resiliency was overcome, and the finger could be passed into the occluded nostril. The clamp was then placed in position and firm but not tight pressure exerted. The temperature rose to 101.2 degrees on the evening of the second day after operation, but soon fell to normal. On the morning of the fourth day I removed the clamp, and plugged both nares with carbolized oakum which was renewed daily. After two weeks' treatment the plugs were abandoned, firm union having taken place, and the patient could breathe freely through both nostrils. The facial deformity was also markedly reduced, the nose being now fairly straight. This patient returned by appointment in about a month from date of discharge when the relief of the stenosis was found to be permanent, and the catarrhal condition had nearly subsided. At this time the left inferior turbinated body was cauterized two or three times by galvano-cautery and the patient has since remained free from any obstruction or inconvenience from catarrh.

Case 2.—F. M., age 30, consulted me Feb. 3, 1893, for almost complete obstruction of the left nostril, very marked facial deformity and catarrh. About seven years previously he had received a severe blow on the right side of the nose. Upon examination I found the left nasal chamber almost entirely occluded, and post-nasal catarrh. The deviation was both cartilaginous and bony, and of unmistakable traumatic origin. I operated by Delstanche's method with the result that in two weeks the patient was breathing as freely through the left nostril as through the right, and upon inspection there was almost as much space. In this case also the deformity of the nose externally was decidedly improved and now, in appearance, is comparatively straight.

Case 3.—G. H., age 17, consulted me, April 6, 1893, for obstruction of the left nostril, which was causing him great discomfort. About five months previously, he had received a heavy blow on the right side of the nose. Upon examination I found marked deflection of the cartilaginous portion of the septum to the left, causing partial stenosis, and there was also post-nasal catarrh. The facial disfigurement consisted of rather an abrupt turning of the tip of the nose to the right. I did Delstanche's operation in this case with the most satisfactory results in regard to both the nasal stenosis and the external deformity. During the past year I have treated several additional cases by means of this operation and with equally good results.

A CASE OF RETENTION CYST OF THE FRONTAL SINUS.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY F. B. EATON, M.D.

PORTLAND, OREGON.

In January, 1893, an Italian aged about 26 years, consulted me concerning what appeared to be an osteoma at the upper and inner angle of the right orbit. Three years before, the skin over the right brow and upper lid became red and swollen. The redness disappeared in three weeks; the swelling remained. Six months later a soft swelling appeared where the tumor is. Sometimes there was pain over the right brow. Nose used to run before the swelling but has "dried up" since. The hard swelling has increased slightly in the past year. No specific history.

Objectively the right eye was pushed downward and outward and there was some proptosis. The hard tumor, about the size of a hickory nut, was not tender to the touch. Nasal respiration was impeded by a very large polypoid in middle turbinated bodies, the right being fully one-half inch wide. Believing this condition might be connected with that of right frontal sinus, I snared off with a powerful instrument the anterior portion of the right middle turbinated bone, the piece being the size of a hickory nut. That night a large amount of fluid escaped from the right nostril. Later I used a small electric light and found I could illuminate the left, but not the right frontal sinus when it was placed under the brow.

In consultation I made a small incision over the projection, ten millimeters above the tendo-oculi, and with an electric drill perforated the bone which proved to be thin. The drill entered a cavity which could be probed to great depth.

Two weeks later at the Good Samaritan Hospital I made an incision parallel with the eye-brow joining it by a vertical one at the inner end, exposed the bone and with a beak-shaped bone knife removed a piece of the bony shell one inch long and one-half inch wide. The sinus was found completely and tightly packed with a fatty granular substance, which was removed with a curette as rapidly as possible, there being profuse hemorrhage. There was no capsule. The sinus was as large as a good sized egg, extending far back, and its outer and lower wall was very thin. This cavity was packed with iodoform gauze, which could not be changed for several days, owing to the free hemorrhage which returned on each attempt. I decided later on to endeavor to obliterate the cavity by keeping it packed with gauze, since there was a continued tendency to mucopurulent discharge, owing to infection from the nose. I made an attempt to secure free drainage into the nose by passing a long slender silver probe by way of the infundibulum into the sinus. To the end I attached a bit of silk suture tying it to a strip of gauze which I drew into the nose. On the following day I found the gauze caused so much irritation that I withdrew it, and continued the daily packing with gauze, which, in about four months, resulted in obliteration of the cavity. The projection of the outer wall remained, however, as well as the displacement of the eye.

The substance removed, examined under the microscope, proved to be composed mainly of fusiform cells of an epithelial character, with some amorphous fatty substance.

DISCUSSION.

DR. MANSFIELD—I have had a case of a gentleman under my observation for the past five or six years with about the same amount of aphonia as the case reported by Dr. Eaton. He has not had catarrh, and being a vigorous male can not

be suspected of hysteria; he is also able to make a much louder and better voice when he sings in a high key than when speaking. He has paresis of the left vocal band probably of cerebral origin.

REPORT OF CASE OF TOTAL ADHERENT SOFT PALATE; OPERATION AND RECOVERY.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY J. E. SCHADLE, M.D.
ST. PAUL, MINN.

Eighteen months since, James S. consulted me in reference to complete stenosis of the nasal passages and deafness which had existed for a period of seventeen years. On examination of the nasal passages they were found to contain polypoid growths varying in size, which by their presence seemed to annoy considerably the patient by creating a continuous flow of serous fluid from the nostrils and bringing on attacks of violent sneezing, which condition ceased soon after the tumors were removed.

Inspection of the throat revealed partial obliteration of the pillars of the palate, entire loss of the uvula, and total adhesion of the velum palati to the posterior wall of the pharynx. What still remained of the soft palate consisted chiefly of cicatricial tissue as was evidenced by the firmness and density of the structure. After explaining to the patient the character of his trouble, informing him of the difficulty surrounding such an operation and advising him against one being performed, he left me, determined to seek advice elsewhere. Two months ago he returned to me and insisted on my giving him relief, if it be possible.

The patient is a book-keeper by occupation, was born in Manchester, England, and came to the United States in 1885. As to family history; mother died early in life from the effects of puerperal septicemia and the father three years ago from an attack of gout. The subject of this sketch is the eldest of six children all of whom except himself are in the enjoyment of good health. The history is negative, so far as tubercular or malignant diseases are concerned. Mr. S. is now 32 years of age, married, weighs 140 pounds, is in a general way robust and healthy and complains of the local malady only, on account of which he seeks advice. He denies ever having had acquired syphilis. When 10 years old he developed a sore throat which continued to disturb him for some months when the family physician was consulted, who pronounced the disease "an ulcerated sore throat" and made repeated applications of lunar caustic. The morbid process of the throat seemed to have remained unarrested as is shown by the fact that at the age of 14, interference of nasal respiration was markedly experienced, and at 16, the sense of smell was lost, the function of the ears was impaired and the power to breathe or blow through the nose was totally abolished.

Cocainizing the parts to be operated upon as thoroughly as possible, I divided the adhesions by the use of an angular probe-pointed knife and curved scissors such as are employed in gynecologic work.

After puncturing on either side of the adherent parts with a sharp-pointed bistoury, I insinuated through the opening thus made the probe-pointed blade of the angular knife and severed the attachments by first cutting downward to the lowest point of adhesion, thence upward to the median or uvular line where the adhesions were freed with the scissors.

These different procedures effected a communication between the naso-and oro-pharynx of sufficient spaciousness for me to introduce my index finger into the post-nasal cavity for purposes of exploration. By means of this manipulation, numerous bands of adhesions extending from the superior surface of the palate to the vault of the naso-pharynx were discovered, which bands I divided with the knife guarded by the finger. The loss of blood was slight. The patient was at once enabled to blow his nose with entire freedom and nasal respiration was restored. In a few days after the performance of the operation, a sense of smell in a measure returned and hearing without any other aid became perceptibly improved. Regarding after treatment which I deem most essential, the plan adopted to keep the denuded surfaces from reuniting, was as follows:

A piece of iodoform gauze, two inches wide, fifteen inches long, was in half its length divided, which parts were respectively drawn through the nostrils from behind the palate forward, thus by means of slight traction bringing the crotch of the tape to rest firmly against the posterior extremity of the septum narium. The broad or oral end of the tape was brought forward through the mouth, and united with the ones passing through the nose over the upper lip. This appliance was well borne by the patient, its presence interfering somewhat with the acts of deglutition and phonation. Apart from this inconvenience no demurrer was made. The dressing was changed every twenty-four hours for two weeks, after which it was omitted during the day and worn through the night only. Mono-chloracetic acid (Smith and Delavan) was applied occasionally to the raw surfaces to insure if possible a favorable issue. Whenever a point of adhesion would show itself, it was immediately broken up. The nostrils and post-nasal cavity were kept clean by the employment in spray form of antiseptic washes.

REMARKS.—1. The cause of the ulcerative processes of the soft palate followed by adhesions, was inherited syphilis. This opinion is confirmed by the fact that the patient had typical Hutchinson teeth.

2. The operation is justifiable and made successful by effecting a thorough division of the points of adhesion, and devoting most zealous attention to all details of after treatment until recovery takes place.

TREATMENT OF HAY FEVER.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY A. C. WOLFE, M.D.
COLUMBUS, OHIO.

Bostock, himself a sufferer from hay fever, gave the first detailed account of this disease in 1819. In 1869 Helmholtz held that the symptoms were produced by vibrios existing in the nasal passage. In 1873, Blackley, by carefully conducted experiments, was led to believe that the pollen of grasses and flowers was the exciting cause of hay fever. In 1883, Roe advocated that hyperesthesia is associated with, or occasioned by a diseased condition, either latent or active, of the naso-pharyngeal mucous membrane. Harrison Allen attributed the disease to permanent

or temporary obstruction to one or both chambers. McKenzie claimed that the disease is dependent upon some functional derangement of the nerve centers as its predisposing cause. Sajous advanced that the affection was due to an idiosyncrasy on the part of certain individuals to become affected by certain emanations and that hypertrophy of the nasal mucous membrane increased its irritability and the intensity of the symptoms, and that three conditions are essential factors in the production of hay fever: 1, an external irritant; 2, a predisposition on the part of the system to become influenced by this irritant; and 3, a vulnerable or sensitive area through which the system becomes influenced by the irritant.

One of the conditions necessary to produce an exacerbation is the presence of pollen in the atmosphere; another, and very important, is the neurotic habit; and another, a local morbid condition of the nasal mucous membrane. Clinical experience teaches that these three conditions are present in all cases, and that a person in whom one or more of these conditions are absent is not susceptible to an exacerbation. I regard the neurotic condition as the most important factor in the etiology of the disease. Neurotic tendencies increase with the advance of civilization; due perhaps, to the constant worry and bustle characteristic of the American people.

The sufferers from this malady nearly all belong to the active, energetic class of so-called nervous organization. A singular feature is that it is almost exclusively confined to persons of some education, and generally to those of a fair social position. Heredity has a powerful influence. In Wyman's experience there was heredity in 20 per cent., and in Beard's 33 per cent. In forty cases recorded by Sajous, 35 per cent. have near relatives who present a clear history of hay fever, and 42 per cent. have asthmatic relatives. Beard also established the fact that the prevailing family tendency was in the direction of nervous affections, such as chorea, epilepsy, asthma and other kindred disorders. It is a matter of constant observation that the disease runs in families. The pathologic lesion in these cases is found in the lack of vasomotor control which characterizes the neurotic manifestations, and that the affection is closely allied to asthma, in which the essential lesion is due to a vasomotor paresis of the blood vessels of the bronchial mucous membrane, while in hay fever the condition is due to a vasomotor paresis of the blood vessels of the nasal mucous membrane. An investigation of the origin of the premonitory symptoms will show that a neurotic element is an essential part of the affection. The following have been observed: A tickling in the roof of the mouth, dull pains in the head and back; another experiences chills and shuddering; and a large proportion complain of palpebral pruritus some days before the symptoms begin. The symptoms may be those of a mild coryza and last only a few days, or they may assume such a violent form as to cause the patient great suffering. There are two well marked types of the disease, the catarrhal and the asthmatic. In the former the onset is usually very sudden. The attack usually begins with a sensation of itching in the nostrils, which soon becomes very intense and causes violent and prolonged sneezing; a burning sensation in the inner canthi, followed by profuse lachrymation, may accompany this symptom, or constitute the first evidence of the access. Very soon the nose becomes occluded through turgescence of its lining membrane, and respiration through it is practically impossible. A watery discharge appears, which soon becomes very profuse. Violent sneezing may begin at once, or occur when the watery discharge begins to trickle down along the intra-nasal walls. The asthmatic form of the complaint may be superadded to the disorder just described, or may constitute the entire affection. The only disease with which it need be mistaken is an ordinary acute rhinitis; but hay fever differs essentially from the ordinary cold in the head, in the fact that the latter is marked by several stages, namely: 1, a dry stage, lasting about twelve hours; 2, a stage of serous discharge, lasting from two to three days; and 3, a stage characterized by a profuse muco-purulent discharge, which lasts from five to ten days. In hay fever, on the other hand, the discharge is a serous discharge from the onset, and is practically so during its whole course. An examination of the mucous membrane should always serve to establish the existence of a morbid condition which is due purely to a vasomotor paresis. The appearance of the membrane is characteristic, and resembles in no respect an inflammatory process. It is markedly swollen, giving rise to more or less complete occlusion of the nares, but is of a bluish-gray color, which in every respect differs from the appearance of the membrane in a state of acute inflammation, which is of a bright red color. The mucous membrane in hay fever is covered with a thin, slightly viscid, watery serum, which gives it a glassy and semi-translucent aspect. The prognosis is not a grave one, but the tendency to the development of a periodical asthma and eventually of a perennial asthma is one that should always be borne in mind. A spontaneous disappearance of the disease has been observed in children, perhaps due to increase of nervous stability, consequent upon their growth and development. As there are three factors which we regard as essential in the production of an attack of hay fever, the treatment will consist in measures for the correction of the same. The object of this article, thus far, has been to demonstrate that the experience of different specialists and writers warrant the belief that the neurotic element is the prime factor in the etiology; and I am thoroughly convinced, beyond a doubt, from my own experience in fifteen cases, that this is the correct theory. Therefore I deem it of the utmost importance in the treatment of this disease, that our main attention be given to the nervous system; although the treatment of the other factors should not be neglected.

That the disease can be cured can not be questioned. That all cases can be cured is very questionable. We can only assure our patients that a majority of cases are curable, and that much relief certainly can be afforded in the larger proportion of cases. Many internal remedies have been recommended for the neurotic habit. The most successful ones are belladonna, zinc, arsenic, phosphorus, strychnin, valerian, assafetida, bromids, iodids, chloral, opium, quinin and various preparations of iron. In my treatment of five cases last year with belladonna and phosphid-zinc combination, two of the cases commenced treatment about two months before the attack was expected, one three weeks, one two weeks, and the other during the attack. The two cases in which I began treatment early, almost entirely escaped the attack. In the two that took

treatment so short a time before the expected attack, the severity of the symptoms and their duration were very much lessened. The case which commenced treatment during the attack, was also a sufferer from perennial asthma from childhood. I continued the treatment through the attack and during the three succeeding months, during which time he had no symptoms of asthma. After he had stopped taking medicine for about a month, an attack of asthma came on, but much milder than before. I again put him upon his former treatment which he is taking at the present time, and has been exempt from further attacks since renewing treatment. Previous to commencing treatment the attack would come on once a month and last for a week or more. This leads me to believe this to be the treatment, not only for hay fever, but also for purely asthmatic patients, and I think it best to give the remedies as Bosworth has recommended in his formula. In all cases a careful inspection of the upper air passages should be made, and if any morbid lesion exist, it should be corrected and the normal patency restored as nearly as possible.

It is very essential to begin the treatment at least two months before the annual attack is expected, thus building up the general system, and bringing it thoroughly under the influence of the medicine in order that the coming attack may be warded off, or at least very much ameliorated. Blackley found that the greatest relief was afforded by the exhibition of iodid of zinc in doses of one two-hundredths of a grain. Beard and McCullough advocated the use of quinin. Good results are sometimes obtained from the administration of belladonna in connection with opium. It is best to begin the drug about three months before the attack is expected and to continue it until the end of the period. McKenzie speaks very highly of valerianate of zinc in combination with assafetida. He gives 1 grain of the zinc with 2 grains of compound assafetida pill. Bosworth regards belladonna as exercising a more specific and thorough control of the disease than any other drug, and next to this he places reliance in the therapeutic value of some preparation of zinc. He claims most excellent results from the following formula:

R. Zinc phosphidi. . . . . gr. viij.
Ext. belladonna . . . . . gr. x.—M.
Fiat mass. in pill . . . . . No. xl. div.
Sig: One pill three times a day, after meals.

If there is impairment of the general nutrition he adds 1 grain of arsenious acid to the above prescription.

For the local treatment of the exacerbation of hay fever, no remedy equals cocain, in relieving the local manifestations. The value of its action is in contracting the blood vessels rather than in its anesthetic action. It should be used as a spray, and in the hands of patients, the solution should not be stronger than 2 per cent.: to the solution I generally add sodic bicarb. and the borate. Another good combination is to add albolene; this not only affords the controlling action of the cocain, but also coats the membrane with the albolene in such a way as notably to protect it from the impact of pollen. The sleeplessness and nervous irritability necessitate the administration of anodynes to secure rest; for this purpose I give sulphate of morphia, one-eighth grain every two hours until relieved.

DIPHTHERIA; ITS ETIOLOGY, CHEMIC PATHOLOGY AND TREATMENT.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY M. M. JOHNSON, M.D.
HARTFORD, CONN.

ETIOLOGY.

The century which has just passed has been fertile in scientific researches. The etiology of diphtheria has engaged the attention of many of the ablest workers of our profession. Atmospheric conditions, peculiarities of soil, miasmatic conditions and filth have each in their turn been investigated to account for the origin of this most fatal disease.

The symptoms accompanying this disease as conditions of the throat, with all its clinical peculiarities; the onset fever; the sequelæ of paralysis, have long been known and accounted for by a poison absorbed in some way into the system.

In 1841 Henle expressed his belief in a contagium animatum. Schwann demonstrated the presence of lower organisms in fermentation and putrefaction. The teachings of Pasteur, "concerning the conditions under which putrefaction occurs, all tend to explain the various contagious and infectious diseases by analogy, and stimulated the search for a vegetable organism in diphtheria."

Huter found these in the diphtheritic membrane of the pharynx and larynx, inoculated them into the mucous membrane of animals and described them as dark, round active little bodies. Ortel found them in diphtheritic membrane and lymphatic glands and kidneys and other organs. He considered them as constituting the contagious element. Thus we see that the trend of scientific investigation was in the line of a microörganism as the specific cause.

It was reserved for the last decade to fully demonstrate the etiology of diphtheria which places little if any, doubt upon the subject. Paralysis is the constant and dangerous symptom following diphtheria. The problem before the investigation was to fully account for this condition.

Klebs first discovered the bacillus diphtheria; Löffler first isolated it in pure culture; Roux and Yersin were the first to show that, when introduced into the circulation of a rabbit, this bacillus produced paralysis.

Löffler, in his article published in 1884, in his histologic examination of a large number of cases of diphtheria, concluded that a specific of bacillus found by him in diphtheritic membranes, and whose morphology and biology he carefully studied, was identical with the one described in the previous year by Klebs, and is the only one present which is of any pathogenic importance. These investigations were verified by Babes, D'Espine, v. Hoffman, Artmann, Roux and Yersin, and others.

The question was considered as practically settled that the Klebs-Löffler bacillus was the cause of diphtheria, and was present in all the primary cases of this disease in the diphtheritic deposits. When inoculated into susceptible animals it produced the disease in all its features, even to the characteristic paralysis. This would have settled the question beyond a doubt had not Prudden, of New York, come to a different conclusion from the examination of twenty-four cases of diphtheria, (*American Journal*

of the Medical Sciences, April and May, 1889) in which he failed to find a single instance, either by microscopic examination of membrane, or by culture of the Klebs-Löffler bacillus. As Prudden was a competent bacteriologist, Löffler said: "I do not believe that in North America a form of diphtheria prevails different from that with us."

Prof. W. H. Welch, M.D., and A. C. Abbott, M.D., (Bulletin of the Johns Hopkins Hospital, Volume ii, No. 11) review Prudden's cases. All but two of the twenty-four cases occurred in children's asylums or hospitals, sixteen being in a large foundling asylum, in which measles and scarlatina were prevalent. In seven cases the diphtheria was complicated or preceded by measles, in three by scarlatina, in one by whooping cough, in four by phlegmosis or erysipelas inflammation, and in only nine was the diphtheria uncomplicated by previous disease. Of these which were apparently uncomplicated, it is uncertain how many developed in the hospitals, under the same epidemic influences as the majority.

It is evident that the cases examined by Dr. Prudden, taken as a series, could not be regarded as primary diphtheria but rather as diphtheria secondary to measles, scarlatina, erysipelas, or as developing where these diseases prevailed.

Professors Welch and Abbott further state that it is remarkable that in not a single instance in the apparently primary cases of diphtheria did Prudden find the Löffler bacillus. His observations can not be considered contradictory to others who had studied primary diphtheria. They wisely concluded that more bacteriologic examinations should be made of primary diphtheria occurring in this country.

In May, 1890, these two eminent bacteriologists commenced the examination of membranous exudations in cases of diphtheria in Baltimore. In all the cases examined by them, clinical diagnosis was positive and all were primary cases of diphtheria developing in healthy children in private practice in various parts of that city. Their examinations were made from bits of membrane removed by sterilized forceps, during life. After separating the bacillus in pure culture its virulence was tested in each case by the inoculation of guinea-pigs; they had for comparison pure culture of the Löffler bacillus obtained from the Hygienia Institute in Berlin. The identification of the bacillus in their cases was based upon a study of its morphology, its behavior in various culture media and its effects when inoculated into guinea-pigs and other animals. In all respects they found it identical with the Löffler bacillus in the culture obtained from Berlin. This series of experiments removes all doubt that the Klebs-Löffler bacillus is the veritable bacillus diphtheria.

The location of the bacillus diphtheria in the membrane is thus stated. Most superficially are various kinds of bacteria, among which the Löffler bacillus is recognized; beneath comes a feebly-stained layer, rich in cells, but containing little or no fibrin; in this layer the Löffler bacillus, both singly and in groups, are made out. In the deeper layer the Löffler bacillus is abundant. In the layer resting on the mucous membrane no Löffler bacillus are seen. The bacilli are never found in the mucous membrane nor in sections of internal organs. The Löffler bacilli therefore not only do not invade the mucous membrane, but they usually do not extend through the diphtheritic membrane.

Dr. William Hallock Park, of New York, in a careful review of the etiology says: "The toxic albumins produced by the diphtheria bacilli have been especially investigated by Roux and Yersin, Fraenkel and Brieger. This toxic substance is of a proteid nature precipitated by alcohol and soluble in water. Nearly pure it is a white amorphous mass of specific gravity and keeps its properties for a long time unchanged. With Roux and Yersin's experiments four-tenths of a milligram of the substance when inoculated killed eight guinea-pigs. The long continuance of the toxic power of the poison in the body and its slow absorption from the locally affected tissues account for the deaths which occur some time after the entire disappearance of the bacilli from the infected throats.

"Experiments with the Klebs-Löffler bacilli show that an agar tube culture in the laboratory is still alive after seven months, and bits of membrane kept in cloth still alive after six months. In dark, damp or dirty places life remains much longer, but under unfavorable conditions the bacilli might live only a few days."

Dr. Park concludes that there are two great divisions of pseudo membranous inflammations; one caused by the Klebs-Löffler bacilli and the other by some form of streptococci. The name, diphtheria, will probably be agreed upon by all for those cases in which the Klebs-Löffler bacilli are present, alone or associated with other bacteria. For the other, some name will have to be agreed upon.

Further investigation only can determine whether streptococcus diphtheria will be acceptable for the present pseudo-diphtheria. In June, 1893, Dr. W. T. Councilman, of the Harvard Medical School says: "We now regard those pseudo membranous inflammations as belonging to diphtheria in which the Klebs-Löffler bacillus is found. When that is not present, no matter what the extent and the character of the local lesions, no matter what the severity of the symptoms, the disease is not diphtheria. The Klebs-Löffler bacillus is a small organism not much larger than the tubercle bacillus. Its most striking feature morphologically is its variation in form and its irregularity in staining, the ends of the organism are frequently clubbed, sometimes at one end and sometimes at both ends and when stained it shows a series of clear spaces along with intensely stained particles. The diphtheria bacillus is not a pus producing organism, and varies greatly in virulence.

"The danger in diphtheria lies chiefly in the absorption of the virus which is produced locally, and this does not take place with anything like the same readiness in adults as in children, due probably to the more delicate tissues of a child, its greater vulnerability and possibly a greater facility of absorption."

Dr. Louis Fischer, of New York, in a series of experiments, found true diphtheria bacilli in sink traps of houses where diphtheria had prevailed.

Pseudo-Diphtheritic Bacillus.—The status of the so-called pseudo-diphtheritic bacillus can not be considered as settled. Löffler finds such a morphologic and biologic difference between it and the true bacillus diphtheria, as to lead him to regard it as a different species.

Roux and Yersin consider it as a modification of the bacillus diphtheria, from which it only differed by absence of virulence. They claim that the pseudo-diphtheritic bacillus is identical in its morphology

and its behavior in culture media, with the diphtheritic bacillus. The former is only an attenuated form of the latter.

Dr. Abbott, after conducting an extensive series of experiments, (Johns Hopkins Hospital Bulletin, October-November, 1891) is unable to finally settle the question. Clinically the practitioner can not distinguish the one from the other; both should be treated the same.

Abbott has so recently given an exhaustive review of this subject that Dr. Park in his articles gives but a brief summary.

It has been established that bacilli with all the characteristics of the Klebs-Löffler, except their virulence, are to be found exceptionally where pseudo-membranes are absent. These are never numerous, only a few scattered colonies being found on plates or tubes. Roux and Yersin found gradations in virulence. As the result of a large number of experiments these investigators hold that the morphologic and cultural difference between the diphtheria and the pseudo diphtheria bacilli are inconstant, and when present are insufficient to establish that they belong to different species. In this country the pseudo diphtheria bacilli have been infrequently found. Prudden in a large number of cases in New York did not find them once. Koplik has found them a few times and Abbott in fifty-three cases, in four. In these studies the pseudo diphtheria bacilli were met with but once as proved by animal experiments, (159 cases by Dr. Park).

Councilman says of pseudo diphtheria: "Too frequently in practice every sort of white deposit and discoloration in the membranous inflammation is perfectly distinct anatomically, whatever may be its etiology. It is always dense and firm and is made up of fibrin and degenerated cells. In the pseudo diphtheroid inflammations are masses of bacteria collected on the surface of the mucous membrane, consisting of cast-off epithelium, mucus and masses of bacteria of varied forms. In the absence of a definite diagnosis made by bacteriologic investigation, the only safe way is to consider every case in which pseudo membranous inflammation of the throat is found, whatever its character, however mild the clinical symptoms may be, as a case of true diphtheria.

The foregoing history is interesting and of great value: 1, as showing the extreme care taken to logically eliminate every element of error in this most brilliant line of discovery; 2, that the bacillus diphtheria, when subjected to culture media and inoculated into susceptible animals, not only produces the characteristic membrane at the site of inoculation; but further, is the cause of the paralysis following, a symptom observed to be characteristic of diphtheria for so long a period; 3, upon these results we can consider the etiology of diphtheria as fully settled.

THE CHEMIC PATHOLOGY.

There is a beautiful harmony existing between the etiology, as embodied in the bacillus of Löffler being the veritable cause of diphtheria, and the chemic pathology, which is the next step in the line of accounting for the tissue changes which exist in diphtheria.

Sidney Martin, M.D., F.R.C.P., in his Gulstonian lectures on the chemic pathology of diphtheria, (*British Medical Journal*, March 26, 1892) has, in his masterly way, given us the most recent status of this most important study. In these lectures he demonstrated in what the diphtheritic poison consists. His exhaustive study upon the pathology of anthrax, infective endocarditis and tetanus, are applied to diphtheria. Anthrax and infective endocarditis he groups as eminently febrile; while diphtheria and tetanus manifest symptoms referable to the nervous system.

In diphtheria and tetanus the primary infective agent is found only at the point of inoculation; hence the study of its morphology does not account for the symptoms which follow. A chemic investigation is necessary, not only for the explanation of the symptoms, but for a scientific treatment of the disease. Leaving the study of the pathology of anthrax, familiar to you all, we will direct our attention to the methods described in the chemic pathology of diphtheria.

Dr. Martin conducted his experiments on eight cases dead of diphtheria. His method of separating the poisonous products from the tissue was as follows: The spleen and other tissues, with the blood, are finely minced and placed in rectified spirits and allowed to stand until the proteids are coagulated; they are then filtered and the residue is then extracted by cold distilled water until nothing more is dissolved. The extracts are evaporated at 35 degrees C., to a small bulk and placed in absolute alcohol. This precipitates most of the albumoses. After standing the alcohol is poured off, the precipitate evaporated to dryness at a low temperature and extracted by absolute alcohol, until nothing more dissolves. The process of dissolving in water and precipitating in alcohol is continued, until all traces of bodies soluble in alcohol and excess of mineral salts is removed. After the last precipitation, the precipitate is allowed to stand under absolute alcohol for about two months, after which the alcohol is poured off and the precipitate dried in a vacuum.

The resulting product is a light yellowish brown powder, which yields nothing to alcohol, ether or chloroform, and which keeps indefinitely if put in a dry atmosphere. It is soluble in water, cold or boiling. The alcoholic extract of the tissues is strongly acid and contains an appreciable amount of free fatty acid. Another acid is separated from the first by its solubility in chloroform.

The chemistry of the tissues in diphtheria results in two classes of substances, which are abnormal to the body—one belonging to the digestive proteids, namely, albumoses; the other an organic acid.

The albumoses of diphtheria can not be distinguished from those of anthrax; their physiologic effect, a test more delicate than any chemic action, is the only mode by which their specificity is made evident. It is the injection of this substance which causes the symptoms of paralysis.

The fever following the injection of albumoses is very variable, as is the case in the course of diphtheria. In the first animal injected, the fever lasted during the seven days that the animal lived. In subsequent injections the fever lasted from one to three days, varying from 3 to 4 degrees.

The symptom of paresis is more definitely marked following the injection of albumoses. In the first animal injected, paresis of the left leg appeared on the second day; it was not used so much in jumping. The paresis was more marked on the seventh day, both legs were affected on the fifth day,

and on the seventh day there was paresis of all the legs. From the injection of these substances a paresis is produced which may be more marked in one limb but always progressive and general. The paresis is not accompanied by any wasting of the muscles; when one limb is more paretic than the other it does not waste to a greater extent. The slowness of the coagulation of the blood was also characteristic of this condition of diphtheria.

Examination of the Nervous System.—Martin next makes an examination of the nerves supplying the paralyzed muscles. His method of studying the peripheral degeneration is to stain the fresh nerve with osmic acid, so that the white substance of Schwann is stained black, and counter-staining with carmine to bring out the nuclei and axis-cylinder. In all animals the same changes were found. After staining the motor nerve with osmic acid and following its course, the upper part of the fibers are normal. A little lower down they show a breaking up of the white substance of Schwann, which is thin and but little stained by the osmic acid, while lower down the white substance disappears entirely. Below the point at which the white substance disappears, the axis-cylinder is in many instances broken. After the rupture of the axis-cylinder, the nerve fibers below the rupture undergo the Wallerian degeneration.

The part of the nerve primarily affected is the white substance of Schwann, which breaks up and finally disappears. The different branches of the motor nerve are affected in a varying degree, so that in an individual motor nerve there may be fibers which can still innervate the muscle owing to the integrity of the axis-cylinder. This is the reason why the condition observed throughout life is a paresis and not a paralysis. In many nerves the change only affects a few fibers lying side by side, or a single bunch of fibers. This is well seen in many specimens of the phrenic from these animals.

Martin says that the heart is found in an advanced state of fatty degeneration; on what it depends, it is difficult to say, as there is no degeneration of the vagus nerve. It may depend upon the changed condition of the blood or the diphtheritic albumoses may have a special action on the heart. The sensory and sympathetic nerves show a similar degenerative process, oftentimes segments of degeneration. These changes thus described are produced by the inoculation of diphtheria into previously healthy animals. Martin next considers the relation of the nerve degeneration to the changes in the nervous system in diphtheria palsy in man.

Many observers, both before and after the appearance of De Jerine's work in 1878, in which he recognizes that paralysis following diphtheria is due to a parenchymatous degeneration of the peripheral nerves, have described changes in the cells of the anterior cornua of the spinal cord, and some have gone so far as to ascribe the symptoms to a mild form of poliomyelitis. The symptoms are not those of an affection of the anterior cornua of the spinal cord, as there is an absence of the wasting of the affected muscles. These are phenomena due to changes in the peripheral nerves. The poison which produces changes in these nerves and fatty degeneration of the heart may after a time affect the nutrition of the nerve centers causing a fatty degeneration and atrophy of the cells.

Action of the Organic Acid.—When the organic acid found in diphtheria is injected in a watery solution into the circulation of a rabbit, it produces a moderate degree of fever which may last two or three days. The animal wastes a little but has no paralysis following the injection of the acid even after a dose of 0.1559 per kilo of body-weight. The blood coagulates normally. Fatty degeneration follows the injection. The phrenic nerve when examined in its upper half was found normal, while the nerves to the semi-membranosus, the vastus and gastrocnemius, show different stages of the characteristic degeneration already described. Organic acid, therefore, found in the body of diphtheritic patients is like the albumoses, a nerve poison capable of producing the same anatomic changes in the nerves.

The Diphtheritic Membrane.—The chemical examination of a diphtheritic membrane was conducted, as already described, from the tissues of the body of a diphtheritic patient. Thirty milligrams were injected into a rabbit weighing 560 grams. The result of this injection was the characteristic paralysis of the muscles of the limbs, as was described in previous injections. The blood coagulated as already described. The result is important, as it shows that in the membrane there exists a poison which produces exactly the same results as the albumoses found in the spleen and blood of diphtheritic patients, only being much more virulent. There was entire absence of microörganisms in the tissues of the body.

The Bacillus Diphtheria.—All observers agree that the bacillus diphtheria is limited to the superficial layers of the membrane and is not found in the tissues of the body. When inoculated into the body it kills the animal, but its growth is limited to the site of the inoculation.—(Sidney Martin's "Conclusions.")

From the facts under consideration it is clear that: 1, "the bacillus diphtheria forms from proteid products of the same chemic nature as those found in the bodies of patients dead of diphtheria, albumoses and organic acid;" 2, "the albumoses formed by the bacillus diphtheria in artificial cultivation have in single and multiple doses the same physiologic action as those found in cases of diphtheria in man; this action is the production of fever, of diarrhea, of loss of body-weight and of progressive paresis of muscles, dependent upon degeneration of the peripheral nerves;" 3, "the bacillus diphtheria is therefore the primary infective agent of diphtheria." "That this liberates in the membrane a ferment which, when absorbed, digests the proteids of the body forming albumoses and an organic acid." "These digestive products are the agents producing death, in causing fever and the depression and paralysis which follow diphtheria." "The diphtheritic product found in the body does not all come from the membrane."

In the case where there were but a few specks of the membrane found in the larynx, yet in the body a large amount of diphtheritic products was present, it is probable that the ferment absorbed from the membrane digests the more or less stagnant products in that organ. We know that the spleen contains a proportionately greater quantity than the blood of bodies formed from proteids such as uric acid, etc.

TREATMENT.

There is no disease which is subject to such a

latitude of random treatment as diphtheria, some believing diphtheria to be first a local disease, others that it is primarily a constitutional disease and treat accordingly. Still others give no attention to the nature of the disease, whether it is local or constitutional, but administer one drug for a few hours and if there is no improvement try another, and so on, meanwhile having no clear conception as to just what is to be accomplished. When death occurs there is a great feeling of satisfaction that all was done that could be done, because the doctor did not fail to use every remedy possible.

J. Chalmers Cameron wisely says: "If there is one disease more than another in which man should have the conviction, and courage to act upon it, it is diphtheria."

From the etiology already given, based upon the researches of Klebs, Löffler and Welch, and the chemic pathology of Roux, Yersin and Sidney Martin, the question may be considered as settled, that diphtheria is first a local disease caused by the bacillus diphtheria, with the membrane at the site of inoculation and should be treated as such; also, that the bacilli diphtheria liberate a ferment which, when absorbed, digests the proteids of the body, forming albumoses and an organic acid. These are the agents producing death; fever and paralysis following diphtheria. This is the secondary or constitutional stage of the disease.

In diphtheria we have to deal with the same condition, whether the primary site of inoculation is nasal, tonsillar, pharyngeal, laryngeal or elsewhere. Hence these local divisions are unnecessary. We should treat the disease and not the location.

We would emphasize the fact that every practitioner should have a clear conception of the condition which he is to treat, and a well-defined outline of his methods based upon scientific knowledge. The first or local stage of the disease is necessarily of short duration. If seen in time, treatment should be directed to the destruction of the bacillus diphtheria at the site of inoculation; this done, further treatment is unnecessary.

Ruling out a thousand and one pet nostrums which physicians use without reason, we will confine our discussion to two methods. The first is known as the tincture of the chlorid of iron treatment, which has constituted the standard treatment by the medical profession for over a century. Second, the bichlorid of mercury treatment, which has been in use for about fifteen years, although used by some for a longer period.

Chlorid of Iron Treatment.—Prof. J. E. Winters, writing on the use of iron, states ("Diphtheria and its Management," p. 36): "If we are to obtain the decided effect of the drug in a case of septic diphtheria, at least 1 dram of the tincture should be administered every hour to a child from 2 to 5 years old. We have given 2 drams every hour for forty-eight hours to a boy 8 years old." This may be taken as a sample of using the iron treatment as a method. Yet Professor Winters states to his class that with this treatment he loses about 50 per cent. It is safe to say that during the last century the iron treatment has been used by the ablest men of the profession, with a death rate of about 40 per cent. and upward, recording as death from diphtheria those who died before the membrane had disappeared from the site of inoculation. Of the large number who have died within a few days to a few weeks from paralysis and heart failure the per cent. is unknown.

It is the undoubted experience of all the practitioners that a large number of those treated with iron have paralysis, more or less extensive, following the disappearance of the local symptoms in the throat. This is the point to bear in mind in judging of the final value of any form of treatment. The fact that paralysis follows the use of iron as a treatment so frequently, means that the drug does not exert a controlling influence over the liberation and absorption of the ferment, and its farther action in digesting the proteids of the body and the formation of albumoses and organic acid, which are the cause of the degeneration of the white matter of Schwann in the peripheral nerves, causing the paralysis. It is here that the physician makes the great error in considering the patient cured and recording it as such, as soon as the membrane has disappeared from the location of inoculation, when in fact the most serious trouble is in progress, viz.: Paralysis and death. The lesson is that we should not too early abandon the treatment.

The Bichlorid Treatment.—The corrosive sublimate treatment, used some fifteen years ago by Billatti, is highly esteemed by many. Dr. Jacobi says ("Practical Therapeutics," Hare): "Diphtheria can not be treated by any other drug as well as by the bichlorid, as it is readily soluble and counteracts the specific poison."

(*Berlin Klin. Woch.*, August 26.) Rennet recently reported his year's treatment with the bichlorid, the result of which was sixty-two consecutive cases of diphtheria, all of which recovered. In none of his cases was there mercurial poisoning.

His formula is:

Hydrarg. chlorid corrosive	1 part.
Acid tartaric	5 parts.
Aquæ	1000 parts.

He applies this solution to the membrane thoroughly every six to twelve hours.

In England the bichlorid treatment as advocated by Dr. C. R. Illingworth, has been highly praised. The membrane disappeared in from two to five days. O'Dwyer, in speaking of emetics in laryngeal diphtheria says by their aid he has succeeded in getting many cases through; especially those which were put on the bichlorid treatment at the commencement of the disease, that would otherwise have required intubation. In the practice of the writer he has used the bichlorid treatment for nine years. During this time he has carefully recorded *one hundred and eighty-five cases of diphtheria with six deaths*, making a loss of 3.2 per cent. (One hundred and twenty-eight consecutive cases without a death). Fourteen were nasal, eight laryngeal. Paralysis appeared in but one case.

The following table shows the death rate from diphtheria in Hartford from 1886 to 1891:

	Reported	Deaths	Per Cent.
1886	94	17	19.14
1887	66	28	43.42
1888	148	43	29.00
1889	348	111	32.00
1890	130	63	48.40
1891	271	92	33.50
	1,057	354	33.39

During six of the nine years in which he has used the bichlorid treatment, the death rate from this disease in Hartford has been 33.39 per cent. The aver-

age death rate in New York City from diphtheria from 1880 to 1884, was 42.405 per cent.

In the epidemic of diphtheria in Bridgeport, there was reported to the city clerk from March, 1885, to March, 1886, 131 cases of diphtheria, with 68 deaths, making a death rate of 51.90 per cent. (Proceedings of the Connecticut Medical Society, 1886.)

In this epidemic 99 per cent. of the physicians in Bridgeport used the iron treatment with chlorate of potash locally.

The writer can better illustrate his method of the bichlorid treatment by giving a detailed history of a few cases where corrosive sublimate was the only treatment and milk the exclusive diet:

Cases 37 and 38 are interesting and instructive, as the history shows.

Nov. 8, 1884, I was called to see a child in consultation with Dr. Coogan, at 34 South Prospect Street. The child had been sick five days. When the Doctor first saw the child he said there were small spots on the tonsils which he thought of little account. A day or two later, he said the child was hoarse and croupy; still he thought there was no danger. On the fifth day he saw the child who was suffering from extreme dyspnea. I expressed the opinion that it was laryngeal diphtheria as there was a diphtheritic membrane covering one tonsil. I was of the opinion that treatment would be of no use. The child died a few hours later.

Nov. 24, 1884, two weeks later, was called to see Joseph N. and William H. F., aged two years and three months, and one year and two months, respectively, in the same building. The older child had a rough croupous respiration, dyspnea well marked. Bearing in mind the fatal case in the same building, I lost no time in putting the child under treatment. I ordered the wash-boiler put upon the stove, the room well filled with steam, and gave one twenty-fourth grain of corrosive sublimate every two hours, with milk between each dose. I returned in a few hours later and found the treatment had been stopped by a meddlesome old woman, on the ground that it was useless to torment the child, as it would die any way. Treatment was resumed and at my next visit again stopped; but a few positive words settled the matter and treatment was not interrupted again.

The next day the younger child, one year and two months old, was taken in a similar way and similarly treated. The breathing in both cases became alarmingly stridulous. They were typical cases of laryngeal diphtheria. Dr. Woods kindly assisted me by making several calls daily to see that the treatment was faithfully continued; I made three visits myself. Four days later, November 28, the breathing became somewhat easier. There was a steady improvement until the 30th inst., when both children were breathing freely. All obstruction was removed and treatment stopped. The older one had taken one twenty-fourth grain every two hours for seven consecutive days and nights. He showed slight symptoms of gastric irritation, which soon subsided when treatment stopped. The younger one showed no signs of gastric irritation.

Cases 53 and 54—I was called to 17 Chapel Street, May 18, 1885, 10 P.M., to see George W. P., and George L. L., who were sick with a very malignant form of diphtheria. The third child had just died with diphtheria within two weeks, under the treatment of a clairvoyant and magnetic healer, who had applied blood-root and other "purely vegetable" remedies to the throats; also gave them Dr. Conant's compound vapor baths, etc., until three died and two more were very sick. The cause of the outbreak was the cleaning of a very large privy vault, which had not been disturbed for many years. George W. P. had been sick four days with diphtheria. Posterior nares, pharynx and both tonsils were covered with diphtheritic membrane; patient was restless. The fatality that had occurred in this house was good evidence that it was genuine diphtheria. I ordered one twenty-fourth grain of corrosive sublimate every two hours, with milk between each dose. Second day, constitutional symptoms were improved; less restless; less fever. Third day, there was an improvement in the appearance of the membrane. It began to thin out and granulations began to appear. The treatment was continued every two hours for five days. The improvement was such that I gave it once in three hours for two days longer, when the membrane had entirely disappeared and the treatment stopped. I then gave an iron tonic. He made a good recovery.

George L., who was sick in the same room, underwent the same treatment eight days and recovered. The clairvoyant doctor seemed less satisfied with the results of these two cases than she was with those that proved fatal. There was quite an epidemic of diphtheria in the neighborhood, resulting from the disturbance of this cesspool.

Case 94.—Master Eddie C., aged 4 years.

This case furnishes the most valuable study in the use of the bichlorid treatment of any I have had to this date.

The following is the history of diphtheria in this family:

Jan. 7, 1887, I was called to see a case of diphtheria in consultation with Dr. Welch, a girl aged 11 years, whom he had treated for about five days with one-twentieth of a grain of the bichlorid every two hours. The diphtheritic membrane had, the previous day, extended to the larynx. We increased the medicine to one-twentieth grain every hour. The next day, January 8, the dyspnea was so great that there was nothing to be done but to relieve the patient's suffering by tracheotomy. At my suggestion Dr. Wainwright was called in to perform the operation of intubation which was not satisfactory, and later I performed tracheotomy. The child was put on one-twentieth grain every hour, with milk and stimulants. Dr. Root stayed with the patient three nights and administered the medicine, which was continued three days with fair prospect that the patient would rally. We then gave the medicine every two hours for twelve hours; then every three hours which was followed by decided failure of the patient who died Jan. 13, 1887. In reviewing the case it seemed to me that if the medicine had been given every hour for a longer time there would have been a greater chance of saving the patient. With my subsequent experience I am more firmly convinced that my conclusions were right. I have detailed this case, which I saw in consultation, to show its relation to Case 94, which I treated from the beginning in the same family, to which we will return.

January 8, Eddie C. (brother of the one just referred to) was sick; examination revealed a large membrane on one tonsil. Dr. Welch asked me if I would take charge of the case. He said he would render me any assistance he could, but wished me to direct the treatment, which I did. One-twentieth grain bichlorid of mercury was given every hour from 11 A.M., January 8, until January 9, 7 P.M., thirty-two hours; one and and three-fifths grains. The improvement was such that I gave one-twentieth grain every two hours until January 11, 7 P.M.; forty-eight hours, one and three-fifths grains. The medicine was then given every three hours until January 12, 11:30 P.M. The next morning the membrane had rapidly extended through the entire nasal passages so that it could be seen in the interior nares. I then returned to the one-twentieth grain every hour, which I continued for seventy-two consecutive hours; three and three-fifths grains were given. There was sufficient improvement to again warrant my administering the medicine every two hours, which was done for twenty-four hours; three-fifths of a grain was given. The medicine was given one-twentieth grain every three hours until January 17, 9 A.M., when treatment was stopped; seven and three-twentieths grains were given in nine days.

Dr. Wainwright saw the case several times. He came in just as I had stopped the one-twentieth grain every hour, which had been given seventy-two hours. The Doctor was surprised to see how bright the little fellow was after this treatment. He said our theories must be wrong as to the use of the bichlorid of mercury. The Doctor related the case in the Hartford Medical Society at the next meeting. The two cases acted similarly; one suddenly becoming laryngeal and the other nasal. As the vigorous and long continued use of the medicine in the latter case resulted so favorably, I believe it would have been equally successful in the former had we pushed the treatment as persistently.

I will further add that the same family lost a child by diphtheria a few months previously in the same house. The teaching of my successful case in this family is that it is necessary to give the large dose and continue it until there are signs of im-

provement, and that there is great safety in so doing.

Case 121.—Laryngeal diphtheria. I was called to Wethersfield in consultation with Dr. Fox, Jan. 15, 1888. The patient, aged 15 years; Dr. Fox gave the following history: Thursday, January 12, he was called to see the patient, who was suffering from a sore throat. Complete aphonia and marked dyspnea. He was put under treatment and there soon appeared a diphtheritic patch on the pharynx, which spread to the tonsils. When I saw the patient there was complete aphonia; pharynx, tonsils, palate and uvula were covered with a solid diphtheritic membrane. The boy lay on his back, mouth wide open, breathing heavily; the case looked doubtful.

I advised the giving of one-tenth grain of corrosive sublimate every hour and milk one-half hour later, with stimulants. The first dose was given at 6:30 P.M., January 15. I saw the patient next day—condition about the same, only that the membrane was softening a little. I advised the same treatment continued until January 17, 7:30 A.M. Patient had now taken one-tenth grain of corrosive sublimate every hour for thirty-five hours; three and one-half grains had been given; a marked improvement in the patient; medicine was given less frequently; at the end of five days treatment was stopped; five and seven-tenths grains of corrosive sublimate had been given.

The first movement of the bowels was in forty hours after treatment commenced, the second fifty-six hours after treatment commenced, the third sixty hours after treatment commenced, the fourth eighty-one hours after treatment commenced. No paralysis following, he made an excellent recovery.

Those who have used the bichlorid treatment intelligently get the most satisfactory results, as far as the prompt disappearance of the disease is concerned. The important point is that the cases so treated not only make a satisfactory recovery immediately, but are exceptionally exempt from paralysis and heart failure, following the disappearance of the throat symptoms.

This one fact of the absence of paralysis would leave ground for a legitimate conclusion, *that the bichlorid of mercury has a controlling influence over the production of albumoses and an organic acid;* known to be the direct cause of death, paralysis and heart failure, as previously stated. If this be so, we have in the bichlorid of mercury a remedy, which, when properly used, will prove of incalculable value in the treatment of diphtheria.

As has been seen from Case 94, I have administered one-twentieth grain of corrosive sublimate for seventy-two consecutive hours with most beneficial results. In Case 121 I used one-tenth grain for thirty-five hours with no constitutional symptoms.

The best results are secured when no cathartic effect follows the administration of the medicine. In case of looseness of the bowels, I usually give a little morphin to control the movements. The more completely the mercury is retained in the system the more rapidly is the disease controlled.

The treatment should be administered according to the severity of the disease, irrespective of the age or weight of the patient. A malignant case of diphtheria is just as hard to control in an infant as in an adult. In my experience it requires just as heroic treatment in one case as in the other. The sooner the patient is brought under the control of the mercurial, in the infant or adult, the shorter will be the duration of the disease and less of the drug will be administered.

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

ABUSE OF THE GALVANO-CAUTERY IN RHINOLOGY.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY W. H. DALY, M.D.

PITTSBURG, PA.

Since I may justly be considered by the profession to have been one of the founders of the school of intra-nasal surgery in America, I trust I may be pardoned if I speak briefly upon some of the abuses that have grown, with the tremendous advance of the special work of this branch of surgical practice.

There are unfortunately always zealots who are ever ready to out-Herod Herod in any field of work; indeed there have been Christians, who have destroyed their fellow beings for the love of God. But it is of the modern, indeed the very latest crop of rhinologists about which I here, with some hesitation ask permission to speak, and in doing so beg to disclaim any intention of personal offense, but none the less I have an ardent desire to hold our excellent special branch of medical practice safe from the wild and injurious vagaries of the injudicious ones who are liable to do us as well as their patients serious harm, by their well-meaning but excessive zeal.

I do not hesitate to say that where positive hypertrophies exist within the nasal cavities they ought to be reduced or removed, with due regard to safety, and the securing of ample and sufficient breathing capacity for the nose; such as Nature intended the individual to enjoy.

But to endeavor to cure half of the fleshly ills, including chronic diarrhea, by the cauterization of turbinates that do not in any way encroach upon the lumen of the nasal canal is beyond doubt a foolish, if not a most reprehensible practice. What I shall say may do little or no good, but I shall nevertheless do what little I can to prevent obloquy cast upon a most useful branch of medicine, to which I have devoted the best years of my professional life.

In 1880 I read a paper before the AMERICAN MEDICAL ASSOCIATION, entitled: "An Analysis of the Value of the Galvano-Cautery in the Treatment of Diseases of the Upper Air Passages." Therein I spoke of the possibilities of this instrument, pro and con, and I supposed that the admonitions of one who had already then used the galvano-cautery in more than two thousand operations might be of some use to the profession as a warning to be careful in its employment, but it proved like the admonition to children "not to put beans in their noses"; they go straight away and do it.

There was an increased demand for galvano-cautery batteries, and the thousands of poor noses and throats that have since been mercilessly burned will probably never be told of, but we hear of many nevertheless, and now and then I have heard of a case where some one has had their nasal interior freely cauterized and gone home, had a chill and died within six days, from intercurrent inflammatory disease traceable to the operation. True, patients will sometimes die from the result of a trivial operation; if this be granted then more's the need that every possible precaution be taken.

Professor Bosworth, has, I believe, always agreed with me that the galvano-cautery ought to be used only by the expert and cautious rhinologist.

I am always in the habit of looking with consider-

able apprehension for inflammatory complications of the middle ear, so that I rarely allow a patient to go from under my immediate care, after the employment of the cautery, until such danger is passed. I much regret this care is not more generally observed; as I have seen as consultant, in the practice of others, serious inflammatory mischief follow the employment of the galvano-cautery, the evil consequences of which were only counteracted by prompt measures, which are in themselves sometimes fraught with quite dangerous possibilities to the hearing: such as perforating the membrana tympana, which must be resorted to for the relief of acute otitis; media purulentia, a not uncommon liability following intranasal cauterizations.

I am sometimes appalled by what I have heard concerning the abuse of the galvano-cautery within the nasal cavities, and I have been sometimes subjected to feelings of chagrin when called upon as consultant, to help bear the responsibility encountered in accidents following the unwise if not cruel and needless cauterizations within the nose.

In conclusion, I do not desire to be understood as making a wholesale condemnation of the employment of the galvano-cautery, in cases where the removal of hypertrophies and growths interfere with the breathing capacity through the nares, pharynx or larynx; but I do most earnestly ask that those who use the instrument will not resort to its employment needlessly, and when they do let them ever bear in mind that the most watchful care is needed to prevent and meet damaging inflammations that may follow to the middle and internal ear, and possible damage, even to the life of the patient.

ABSTRACT—A LARYNGEAL NEOPLASM SIMULATING THE EVERTED VENTRICLE.

Read in the Section on Laryngology and Otology, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY S. K. MERRICK, M.D.

PROFESSOR OF DISEASES OF THE NOSE, THROAT AND CHEST IN THE BALTIMORE MEDICAL COLLEGE.

BALTIMORE, MD.

[Patient, male, age 48, in good general health presented himself accompanied by his physician, May 12, 1893, for laryngoscopic examination. Had impairment of voice and breathing since November 1892, growing steadily worse, until he fell on the street and became unconscious from laryngeal stenosis and over-exertion. Laryngoscope revealed a soft ovoidal, inflamed tumor filling up the left ventricle, concealing left and part of right, and occupying three-fourths of the glottic space. Patient's breathing loud and stridulous. Syphilis denied by family physician and the case diagnosed as probably everted ventricle associated with laryngitis. Later, patient confesses he has had syphilis and the neoplasm is diagnosed as a gumma and treated successfully as such. Comparative rarity of the two affections and the instructive features of the case.]

Mr. W. G. W.. age 48, height 6 feet, weight 175 pounds, occupation capitalist, was brought to my office May 12, 1893, by his physician, Dr. Wilmer Brinton, of Baltimore, Md. Dr. Brinton said his patient had been suffering with dysphonia, (he feared from some laryngeal growth) since November 1892; that his condition had steadily grown worse, until his breathing had become so seriously embarrassed, that he had fallen on the street a day or two previously in a state of asphyxia, becoming cyanotic and unconscious. After restoratives were administered freely, the patient slowly regained consciousness. No doubt over-exertion precipitated this attack. Up to this time patient had declined to consult a throat specialist, although frequently urged to do so by his physician. He now gave his consent. Nothing in the family history was elicited which had any bearing on his case, except that his father at this time was suffering with a carcinoma of the face. With this information, furnished by his physician and the assurance of the latter that he was sure there was no specific taint in the patient's constitution, as his children were all healthy, I began the examination.

The man's breathing was stridulous and there was both inspiratory and expiratory dyspnea and marked dysphonia. His condition was such that he was not permitted to come to my office without an attendant, and his wife did this service for about ten days after treatment was instituted.

The laryngoscope revealed a diffuse intense laryngitis and an ovoidal inflamed tumor, filling up the left ventricle and concealing the anterior three-fourths of the left cord to which it was attached either by adhesive inflammation or as the site of the neoplastic formation. On adduction the growth overlapped the right cord, covering its anterior two-thirds and on quiet breathing about one-half. The ventricular bands were so inflamed and infiltrated that they met at their anterior thirds and covered in the growth at its anterior attachment, thus concealing a considerable portion of the tumor. I now made a careful drawing of the laryngeal image which I kept for comparison in the future progress of the case.

After some days of mild astringents and antiseptic sprays and nightly inhalations of medicated hot vapors, without any very marked benefit therefrom, a consultation was had with Dr. Jno. N. MacKenzie. He was inclined to believe the tumor was an everted ventricle, associated with a severe laryngitis.

While the tumor was compressible and yielding and could be made to occupy largely the ventricular cavity by means of the probe, the left cord could not be exposed by this manipulation, and it was evident that the cord was the primary site of the tumor as the adhesions had been so uniform that it was bound down firmly to all parts of the concealed portion of the cord. I myself inclined to the opinion, that the growth had its origin in the cord, and as it grew it filled up or encroached upon the ventricular as well as the glottic space.

A few days later, Dr. MacKenzie saw the case again with me and affirmed his former diagnosis. Up to this time no change had been made in the treatment; there was possibly some improvement in the laryngitis and the patient was permitted on his own request, to come to the office alone in the future.

May 25, I saw the patient for the first time when his wife was not at his side. Not being fully convinced that I had to deal with an everted ventricle, and yet unable to account for the presence of a soft tumor of the cord, I determined to question the patient myself as to his past history, this being the first opportunity in the absence of his wife, who had always followed him into my operating room. I asked him if he had ever had syphilis at any time during his past life. He confessed at once that he had a chancre fifteen years ago and that he had gone through a course of treatment for six months or a year and was pronounced well. He said he had withheld this information from his physician, and feeling sure his throat trouble was in some way caused by this disease he shrank from a laryngoscopic examination which he believed would lay bare this part of his history; this he said explained his reluctance to consulting a throat specialist.

Believing now that I had to do with a gumma of the cord and a specific laryngitis, I began at once to give iodid of potash cautiously. The drug was well borne and after consulting with Dr. MacKenzie and making known the result of inquiry, it was agreed that the agent should be pushed to iodism, unless contra-indicated. Improvement began in less than a week, and in two weeks Dr. MacKenzie saw the case again and agreed with me that the improvement was great, and that the tumor was doubtless a gumma.

A rapid amelioration in all the symptoms took place and on July 22, 1892, I made another careful drawing of the laryngoscopic image and by comparing it with the one made May 21, it was estimated that two-thirds of the growth had been absorbed and the diffuse laryngitis and infiltration of the ventricular bands had nearly disappeared. Local and constitutional treatment were continued for about six weeks without any marked change for the better, and Dr. MacKenzie suggested that pure lactic acid be applied to the remains of the growth, with the view of destroying it or stimulating its absorption. Undiluted lactic acid was now applied twice a week to the growth and the iodid continued internally. Very slow absorption under the use of the acid took place, but at no time ulceration.

By Oct. 20, 1893, only a slight local bulging of the diseased cord could be seen, and the patient visited the World's Fair at Chicago, where he took cold and had a decided set-back. A

severe laryngitis set in resulting in some swelling of the growth and ulceration of the right cord. It took the remainder of the year to get my patient back to the condition he was in before he went to the Fair. Improvement has gone on steadily since Jan. 1, 1894, and I now see him once or twice a week—he is practically well. The cord has not quite regained its normal pearly white appearance, and I shall keep the patient under observation until I see no trace of the disease left, knowing the liability to relapse.

I have reported this case somewhat minutely in view of its being a rare affection and one simulating another affection which is equally rare; at the same time presenting difficulties in diagnosing to so competent a laryngologist even, as Dr. Jno. N. MacKenzie is acknowledged to be.

The first to recognize the everted ventricle during life was Lefferts who reported his case in the *New York Medical Record*, June 3, 1876. Since then a number of cases have been reported, but the rarity of the condition may be inferred when such observers as Cohen, Elsberg and Semon each have been unable to report but one case.

The gummy tumor of the larynx doubtless occurs much more frequently than the everted ventricle, but owing probably to the great activity of the structures when it is likely to form, it breaks down so readily and forms an ulcer so quickly that the latter process is fully established before the lesion is observed. The rare instances where the tumor does not break down for some unknown reason constitute the class to which my case belongs. Such cases have been reported by Luca, Delie, Charozoc, Fischer, Cardone, Schech, Massie, Sewin and Mandl, which will not probably outnumber the cases of everted ventricle reported.

The foregoing case emphasizes:

1. The difficulty of differentiating the gummy tumor from the everted ventricle, when the former fills up the ventricular cavity.
2. The great importance of excluding syphilis in all laryngeal tumors if possible.
3. The brilliant results which follow specific treatment, although tracheotomy may appear to be necessary, for the stenosis.

A NEW APPARATUS FOR THE TREATMENT OF FRACTURE OF THE INFERIOR MAXILLA.

Paper read before the Colorado State Medical Society, June 23, 1894.

BY CLAYTON PARKHILL, M.D.

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF SURGERY AND CLINICAL SURGERY IN THE UNIVERSITY OF COLORADO; SURGEON TO ST. LUKE'S AND ARAPAHOE COUNTY HOSPITALS, ETC., ETC.

Last October I was consulted by Mr. C., who gave the history of having been sandbagged the night before. The right side of his face and the parotid region presented evidence of serious contusion. The mouth was open and fixed, giving him the appearance of having a dislocation of the jaw. The incisors were separated about three-quarters of an inch, the posterior molars being in contact. There was no lateral displacement. On examination under an anesthetic, I found a fracture of the neck of the jaw. Crepitus was marked. There was apparently no displacement of the upper fragment. Reduction was effected very easily, the teeth coming into perfect articulation. A gutta-percha splint was molded to the jaw, and attached by tapes to a cap covering the head, making an apparatus similar to what is known as the French Dressing.

No sooner had the influence of the anesthetic passed away than the deformity returned. I then

Fig. 1.

applied in turn the various bandages which have been recommended, only to be met by failure with each one.

On the following day I requested Dr. H. P. Kelly,

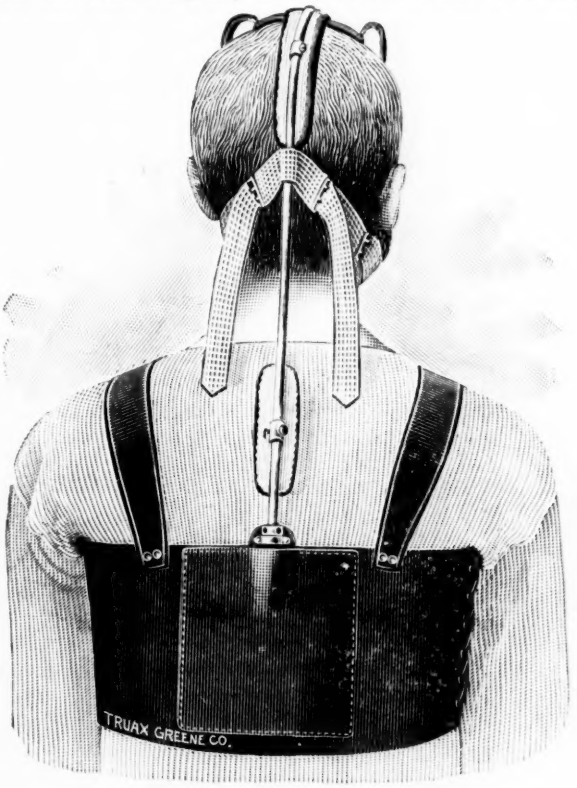

Fig. 2.

an expert dentist of this city to see him with me, and make a model for an inter-dental splint. It was

found impossible to separate the molars sufficiently to get the plastic material between them. I then

Fig. 3.

applied the Hamilton Dressing, only to suffer another defeat.

Fig. 4.

It was evident that the displacement was due to the action of the temporal and masseter muscles on the side affected, and that a dressing capable of holding the jaw in place must be one having an upward and forward pressure, antagonizing this force.

I had the Denver Surgical Instrument Company make for me the apparatus shown in the accompanying cuts. The corset is made of heavy leather and has a socket fitted in it at the back to receive the spring. The spring is in shape similar to the ordinary jury-mast, and is made of steel. It has attached to it an inter-scapular pad and an occipital pad. On its anterior extremity there is an adjustable ring fastened by a set screw. This is intended to regulate the tension by shortening or lengthening the spring. The jaw-piece is made of copper, molded to the shape of the maxilla. The horizontal and vertical tapes attached to the jaw-piece posteriorly are self explanatory. The small chain attached to the jaw-piece anteriorly ends in a hook. This chain is intended to pass through the sliding ring, and when the proper tension is attained, to hook back into one of its own links.

This apparatus was applied with the patient under an anesthetic. The deformity was completely corrected, and there was never the slightest tendency towards its recurrence. The patient expressed himself as feeling no discomfort. He removed it contrary to my directions at the end of twenty-one days. I had intended that he should wear it four weeks. The result, however, was perfect.

A fracture through the neck of the jaw, is a very rare injury, but I believe this apparatus will prove equally good for other forms of fracture of that bone. I propose to have made another jaw-piece which will extend upward around the maxilla and afford a lateral support. With this addition I think the instrument will apply as well to either simple or multiple fractures of the body of the bone, as it does to the neck.

The results obtained in fracture of the lower jaw are far from satisfactory in many cases. Within the last three years I have operated on three cases which were sent to me suffering from ununited fracture. This number of failures to get union in a fracture of no greater frequency seems to me to indicate that present modes of treatment are not entirely satisfactory, and affords me encouragement to present this new method of treatment to the profession for its approval.

THE BUBO PLAGUE IN CHINA, WITH A BRIEF ACCOUNT OF THE GREAT PLAGUE OF LONDON.

BY BURNSIDE FOSTER, M.D.

SURGEON TO THE SKIN AND VENEREAL DEPARTMENT OF THE ST. PAUL CITY AND COUNTY HOSPITAL; DERMATOLOGIST TO ST. LUKE'S HOSPITAL; DERMATOLOGIST TO ST. JOSEPH'S HOSPITAL; VISITING PHYSICIAN TO THE ST. PAUL FREE DISPENSARY, ETC.

ST. PAUL, MINN.

Although the possibility of there being in this country an epidemic of this terrible disease is a very remote one, it would not be at all surprising if an occasional case should be brought to the Pacific coast from China, where it has been raging so recently, and where it still exists. In view of these facts I have thought that some account of this, by far the most fatal and horrible of all epidemic diseases might be of interest—as well from an historical as from a medical point of view. The first extensive epidemic of the plague, of which history has recorded any definite account, occurred in the sixth century, A. D.,

and is usually described as the Plague of Justinian, since it existed during nearly the whole of that emperor's reign.

Although there are some discrepancies in the various accounts which I have consulted, the epidemic seems to have had its origin in Lower Egypt in the year 542. From its starting point it traveled up the Nile, and then leaving that stream it swept with increasing fury into the interior of Asia Minor. Constantinople was visited, with the result that for some days the people died at the rate of 10,000 daily. In the next year it traveled over Greece and Italy; in 545 it extended into Gaul and in the following year reached the cities of the Rhine. During the seventy years of its existence this fearful disease visited all parts of the known world and its victims were numbered by millions. In several instances historians have recorded that more than half the population of many of the cities perished, and that scarcely people enough were left alive to bury or destroy the bodies of those who died. In the words of a recent German historian (Baas): "For long years this plague endured, intermixed at the close with smallpox, sweeping away in its devastating course the bloom of manhood and youth and destroying the greater part of women, maidens and children in all the then known world. It loosened too, almost all the rootlets of the ancient civilization, so that the withered stem was able to maintain for centuries only a feeble and sickly existence."

During the succeeding years of the Middle Ages we have no knowledge of any very extensive plague epidemics until the sixteenth century. In the year 1500 it raged in Germany, Italy and Holland for seven years; in 1534 in southern France; in 1562 for six to eight years it was pretty general throughout Europe. During these epidemics we find it recorded for the first time, that to some extent epidemics were considered preventable, and that there were attempts at disinfection and isolation. Sulphur, arsenic and alcohol were among the earliest disinfectants; and the plague physicians, "Pest Medici" as they were called, wore special gowns and masks, and anointed their hands and arms with medicated oil before coming into contact with the sick. During this and the seventeenth centuries a number of severe and fatal epidemics of this dread disease occurred in all parts of Europe, but the one of which I will make special mention is the Great Plague of London which occurred in the year 1665.

There came by chance into my possession recently two curious old books which were written, the one by a layman and the other by a physician; both inhabitants of London at that time. I refer to De Foe's "History of the Plague," and to the "Works of Dr. Thomas Sydenham," a very eminent physician of that time. These two books give, from their different points of view, such a comprehensive and interesting account of the events of that dreadful year that I shall quote from them both in some detail:

In September, 1664, there began to be rumours in London that the plague was again raging among the Dutch and in the latter part of November two men said to be Frenchmen died of the plague in a house at the upper end of Drury Lane. During the next few months there were occasional cases in the same part of the city, but it was not until early in the following May that there began to be any serious apprehension. With the warm weather the cases became more numerous and in the second week in June about one hundred died of the plague in the out parishes and the disease began to appear in the city, and by July 1 the pestilence had become so general that business of all kinds was suspended and many of those who had the means to do so shut their homes and places of business and fled to the country. The panic among the people became so great that many went mad through fear and others deliberately committed suicide to avoid the infection. Great numbers of quacks, mountebanks and impostors seized the opportunity to prey upon the fear and credulity of the people.

De Foe records that the posts of houses and corners of streets were plastered over with doctors' bills and papers of ignorant fellows quacking and tampering in physic and inviting the people to come to them for remedies.

"Infallible, preventive pills against the plague. Never failing preservatives against infection. Sovereign cordials against the corruption of the air. Anti-pestilential pills. Incomparable drink against the plague. The only true plague water. The Royal Antidote against all kinds of infection, and such a number more that I can not reckon up, and if I could would fill a book of themselves to set them down."

Others assuming specious titles summoned people to their lodgings by such bills as these:

"An eminent High Dutch physician, newly come over from Holland, where he resided during all the time of the great plague last year in Amsterdam and cured multitudes of people that actually had the plague upon them."

"An ancient gentlewoman having practised with great success in the late plague in this city, Anno, 1636, gives her advice only to the female sex."

"An Italian gentlewoman, just arrived from Naples, having a choice secret to prevent infection, which she found out by her great experience, and did wonderful cures with it in the late plague there, wherein there died 20,000 in one day."

"There is no doubt," says De Foe, "but these quacking sort of fellows raised great gains out of the miserable people, for we daily found the crowds that ran after them were infinitely greater, and their doors were more thronged than those of Dr. Brooks, Dr. Upton, Dr. Hodges, Dr. Berwick, or any, though the most famous men of their time."

The Lord Mayor and Aldermen adopted very sensible and very stringent measures for the separation of the sick from the well, and for general disinfection, which doubtless had a considerable effect in controlling the disease. An infected house was at once shut up and a watchman appointed to guard it day and night, to see that none entered or left it without special permission. By this means, harsh and cruel as it was in many instances, the infection was to some extent confined and localized. During August the deaths became so numerous that it was impossible to give decent burial to the bodies. Great ditches were dug, and the bodies, without discrimination were cast into them. It was estimated that above ten thousand houses in London were deserted and that about two hundred thousand people left the city. From August 8 to October 10, according to the mortality bill there died in London 59,810 people, of whom 49,605 died of the plague. The total number of deaths from the plague during the epidemic is placed by De Foe at 100,000. From November 1 the number of cases began to diminish, the death rate of those attacked became smaller and as winter came on, people returned to London, resumed their business and by February of the next year the Great Plague was over.

A very accurate clinical description of the disease is given by Sydenham, and I will presently refer to it. In regard to the nature of the infection by which the disease is spread, De Foe, after discussing various opinions says: "Others who talk of infection being carried through the air only, by carrying with it vast

numbers of insects, and *invisible creatures*, who enter into the body with the breath or even at the pores with the air, *and there generate, or emit acute poisons*, or poisonous ovæ which mingle themselves with the blood and so infect the body." Strange that the actual discovery of germs and of the ptomaine theory should have been delayed for two centuries!

The symptoms of the disease are thus described by Sydenham:

"Its first approach is almost always accompanied with shaking and shivering like the fits of an ague; presently violent vomiting, a pain about the region of the heart, a burning fever with the usual concurrence of symptoms perpetually afflict the sick till either death itself or a happy eruption of a bubo discharges the morbifick matter and so frees them from that deplorable condition. It does now and then happen that it comes without any sense of fever before and suddenly kills men; the purple spots which are the forerunners of death breaking out as they are about their business. But this sudden death scarce ever happens but at the beginning of a dreadful plague. It sometimes also happens that swellings appear when neither a fever nor any violent symptoms went before. The victims sometimes died within a few hours of the first symptoms, and rarely lingered beyond four or five days. If the buboes suppurated it was considered to be a favorable circumstance and they were therefore treated by incision or by caustics."

The other local manifestations were carbuncles, furuncles and ecchymoses. A peculiar and characteristic stench was emitted from the bodies of the sick. At the beginning of the London Plague upwards of 90 per cent. of those attacked, perished. Towards the end of the year the disease seemed to become milder and the mortality was much less.

I have gathered from various sources a pretty accurate description of the epidemic now devastating China, and its identity with the above is undoubted.

The disease first appeared in the Province of Kwantung in the latter part of March and spread principally among the poor and filthy, with frightful rapidity. More than half a million people perished in two months and the great commercial centers, Canton and Hong Kong were soon attacked. In the former city with a population of 1,000,000, the number of deaths exceeded 100,000!

The symptoms are thus described: With or without premonitory warning in the shape of malaria or chill there is a sudden onset of fever, rising to 105 degrees F. or over; there is much headache and cerebral disturbance, accompanied by stupor. In from twelve to twenty-four hours glandular swellings occur in the neck, armpits or groin, rapidly enlarging to the size of a hen's egg; these are hard and exceedingly tender; with or without a decline of the fever the patient sinks into a deeper condition of coma and dies usually at the end of forty-eight hours or sooner. If six days are reached recovery is hopeful. The glandular swelling shows no signs of suppuration, in some cases epistaxis or vomiting of blood occurs. Petechiæ appear in a few but there is no regular eruption. The mortality is about 90 per cent.

In the latter stage of the disease, when the local manifestations are most apparent, the fever usually diminishes and there occurs a sticky and very offensive perspiration. The inguinal and femoral glands are those most commonly affected, although those in the axilla and neck are often involved at the same time. The carbuncles are of less constant occurrence than the buboes and are usually seen on the lower extremities, the buttocks and the back of the neck. Among the sequelæ in those who finally recover, are continuous suppuration of the buboes, abscesses of the skin and muscles, pneumonia, dropsy, partial paralysis and mental disturbances.

The malady is undoubtedly a filth disease and caused by a bacillus. Indeed, Professor Kitasato, a competent bacteriologist and a pupil of Koch, claims to have discovered the specific germ. There is no doubt and it has been repeatedly demonstrated during the last one hundred years, that efficient quarantine gives absolute protection from the disease, and that modern sanitary means can rapidly stamp out an epidemic should a few cases be imported into a well ordered community. It has been well named, "the disease of barbarism," from the fact that it only occurs among the semi-civilized. There is little to be said concerning treatment. There is no known specific and the treatment, like that of all acute fevers, must be supporting and symptomatic. Should there be given sufficient opportunity to study this disease scientifically, which is not at all likely, I am convinced that the only specific medication would be found in the development of the antitoxin theory. It is also probable that immunity might be given by inoculation of an attenuated virus. Fortunately our shores are so well protected by quarantine and our communities are so well ordered from a sanitary point of view that it would be impossible for this plague to make much headway within our borders, even should a case or two find their way through the gates of commerce.

THE DESTRUCTION OF CONJUNCTIVAL GROWTHS BY ANIMAL FERMENTS.

BY T. O. SUMMERS, M.A., M.D., F.S. Sc., LOND., ETC.
WAUKESHA, WIS.

Having been for some time past engaged in the work of experimentation upon the therapeutic uses of the animal ferments in surgical diseases, I desire among many remarkable instances of the powerful digestive action of these agents upon the neoplastic structure to call the attention of the profession to a case of cauliflower excrescences upon the conjunctiva of the lower lid, which are well known to the ophthalmologist and have hitherto been considered amenable only to surgical treatment—complete excision. In the case referred to, the lower lid was covered with a number of these growths, columnar in structure and of rapid growth. The removal of them by escharotics was not for a moment to be considered on account of the danger of injury to the normal structures in which they were imbedded. After thoroughly cleansing the surface and applying cocain to relieve the pain I covered the surface thoroughly with a paste of glycerin and peptinzyme (Reed & Carnrick's preparation from the gastric, splenic and intestinal glands). To my great satisfaction I saw that the growths were immediately attacked and after three or four applications they were completely removed without the slightest injury to the surrounding tissues. I consider this a triumph of therapeutics over surgery and heartily recommend the use of these ferments in all these abnormal neoplastic growths which spring up like mushrooms from mucous surfaces. I shall have more to say of the action of the dialytics upon false membranous deposits in another paper upon this subject.

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SATURDAY, SEPTEMBER 22, 1894.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

By the time this number of the JOURNAL reaches our readers, the goods and chattels of the ASSOCIATION will have been housed in more commodious quarters. It has long since outgrown the little space in the Wabash Avenue building in which for the last decade the business of the JOURNAL has been done and the faithful compositors have worked. The erection of the new city library building cut off the light and air to a great extent. The gas has been lighted continuously during business hours for the last six months, and owing to the cramped space the editorial work had to be done elsewhere.

The editor was last year authorized by the Trustees to secure other and better accommodations, but it was thought best, owing to the unsettled outlook of business matters generally, to wait another year. The year passed, and finds the ASSOCIATION once more with a sufficient balance in the treasury to warrant it, and new offices are being fitted in the *Times* Building, 84–86 Fifth Avenue, where the members of the ASSOCIATION, and the subscribers to the JOURNAL, will be made welcome should they visit the office.

For the first time in its history, the JOURNAL will in one week from the date of this issue, be printed on its own presses, the best and fastest that can be purchased at this date, while the remainder of the machinery is of the latest and best pattern. No fault can be found with the excellent press work so long furnished by MESSRS. BLAKELY & ROGERS, but it has not only seemed to the Committee on Management, more economical but vastly more convenient, to have all the work done under the immediate supervision of the editor. The experienced foreman, who has been with the JOURNAL, with slight interval ever since its foundation, will continue in that capacity for many years we hope. While the first outlay will be considerable, the ASSOCIATION will be the gainers in having the office fully equipped, probably better than any medical journal in the world. In business matters it is an axiom that to do business one must be prepared for it. The preparation has now been made and the Trustees confidently appeal to the medical profession at large, scarcely less than to the members of the ASSOCIATION to approve of the great advance in medical journalism by renewed and active interest in the ASSOCIATION, and its JOURNAL, which is published in the interest of the *entire* profession.

In the face of this great improvement in the material interest of the JOURNAL we trust we may be pardoned, if we refer with pride to the steadily onward progress the JOURNAL has made since its commencement. The wisdom of its founders has been made apparent, and the broad lines of development laid down by the first Board of Trustees are bearing their fruit. Carping critics have not infrequently amused themselves by predicting the downfall of the JOURNAL, but supported by the ASSOCIATION, it has continued to prosper beyond the most sanguine hopes of its best friends. With the increase in its subscription list that must follow, the JOURNAL will soon be able to enlarge its scope, by adding new departments from time to time, as its support justifies.

IS SMALLPOX A SPOROZOAN DISEASE?

Smallpox belongs to that class of acute exanthematous diseases like scarlet fever, measles and chickenpox, in which, notwithstanding the patient efforts of bacteriologists, a specific microbe has not been demonstrated. From time to time, since bacteriologic methods have been employed, the report of the discovery of the specific bacterium of one or another of these diseases has appeared, only to be refuted by more extended studies. That smallpox, for example, with its well-marked typical course; its pronounced infectious character; and the long-known possibility of preventive inoculation should escape the most searching analysis of the bacteriologist, is indeed singular. Reasoning from the analogy with other infectious diseases, nothing would apparently be more simple than to isolate from the vaccine virus, the bacterial parasite of smallpox. It is scarcely to be wondered that the few remaining critical scoffers against pathologic mycology have pointed to these negative results with vindictive emphasis.

These failures indicate one of two conclusions: 1, either smallpox is not a parasitic disease; 2, or, being caused by a parasitic organism, this organism is one which does not yield to any of the methods employed in the ordinary bacteriologic technique. To admit the first postulate would be to undermine the whole foundation of modern parasitology. Obvi-

ously, in the still comparatively new state of bacteriologic science, such an inference would be premature. The only reasonable attitude, therefore, toward the unsolved problems of the etiology of that class of diseases of which smallpox is a type, is that indicated by our second postulate—an attitude of patient expectancy.

Recent studies in parasitology, however, tend to stimulate us with the hopes that ere long we may be rewarded by the discovery of specific organisms for many of those diseases which still baffle our investigations. These hopes are kindled by the progress made in the past few years in the study of a class of lowly animal parasites which do not respond to the usual methods of investigation employed by the mycologists. The current literature of micro-biology bears witness to the eagerness with which the work on the protozoan parasites of man and the lower animals is being pursued. The remarkably prolific discussions on the protozoan theory of cancer have furnished the attentive medical world much information concerning this hitherto overlooked (in human pathology) class of parasites. Along this same line is the work that has given us the specific parasite of malaria—a protozoan microörganism with well defined characters.

The large proportion of the studies on the sporozoa as disease-producing organisms have been confined to the lower animals, especially to the lower vertebrata—fishes, amphibians and birds. The coccidia disease of rabbits and other mammals has long been known. The probable identity of a sporozoan organism residing in the blood of infected cattle, with the parasite of Texas fever, has been established by the investigations of THEOBALD SMITH (Texas Fever, U. S. Department of Agriculture, Bureau of Animal Industry, Bulletin No. 1, 1893; and preceding communications herein referred to).

With these introductory researches on the sporozoan diseases in view, it is not surprising that the presence of the protozoan parasites should have been suspected in those infectious diseases which had escaped the investigations of the bacteriologists. In fact, KOCH predicted more than ten years ago, (*Deutsche Medicinische Wochenschr.*, 1890, p. 757) that in measles, scarlet fever, variola, typhus, etc., which had resisted mycologic study, animal parasites would be found. Doubtless with these predictions in mind, a number of investigators have undertaken the study of the non-bacterial diseases—including smallpox.

For a long time careful observers have noted peculiar bodies ("inclusions") lying in the substance of the epithelial cells of the vesicles of variola and vaccinia. These bodies have been described, and in part, illustrated, by POHL PINCUS, WEIGERT, KLEIN, BAREGGI, PLAUTH, ZÜRN, ISIDOR NEWMAN, BIRCH-HIRSCHFELD, HELFAUT, CORNIL and BABES. These pioneers did not, however, suspect the parasitic nature of these cell inclusions.

L. PFEIFFER (*Monatshefte f. prak. Dermatologie*, Bd. vi, Nr. 10-15, 1887; and *Die Protozoan als Krankheitserreger*, 1890, and 1891) was the first observer to ascribe to these intra-cellular bodies in variola and vaccinia a parasitic protozoan character. VAN DER LOEFF (*Ibid.*, Bd. vi, Nr. 5 u 10) published his observations almost simultaneously with PFEIFFER. The reports of PFEIFFER and VAN DER LOEFF were confirmed by the studies of GUARNERI (*Archivo per le Scienze Mediche.*, Vol. xvi, Nr. 22, 1892) on smallpox.

Recently, RUFFER and PLIMMER (*British Medical Journal*, No. 1748, page 1412, 1894) have reviewed the previous work and have, in their personal researches, been able to substantiate the claims of the foregoing authorities who regard as protozoa the cell inclusions of smallpox.

PFEIFFER describes the sporozoa of smallpox as existing in two forms—a free flagellate organism residing in the blood plasma; and an amœba-like inclusion in the epithelial cells. In a case of vaccinia in a child he found the free flagellate protozoa in the blood at the fourth day after vaccination and marked their presence until the sixth or seventh day had expired. When stained by the Biondi Ehrlich reagent the organisms exhibited a small central nucleus; and in preparations stained by the Biondi-Ehrlich reagent, and followed by Löffler's flagella stain, distinct flagella were noted—a single flagellum to each organism. PFEIFFER found similar organisms in the blood in cases of varicella and zooster. He was rarely able to discover these amœbæ in segmentation stages as observed in the plasmodia of malaria. Similar forms to those just described, but minus the flagella, were found in the contents of newly formed vesicles of zooster, varicella and vaccinia. The amœbæ were never found in the substance of the red blood corpuscles, and the investigator concludes that the free parasites in the blood represent but one stage of the infection.

With the disappearance of the organisms in the blood in smallpox, a secondary cell infection makes its appearance in the epithelium of the epidermis. A similar phenomenon occurs in the *stratum lucidum* in scarlet fever, zooster, varicella and measles. The intra-cellular bodies increase in size, pushing the nucleus of the cell to one side. Bodies similar to these cell inclusions also appear in the cellular interspaces of the epidermis. Eventually these inclusions, after increasing greatly in size, undergo a multiple segmentation with the production of countless, very minute spores.

This is, in substance, the description given by PFEIFFER of the sporozoan parasites of the acute exanthematous diseases, and it is, in the main, sub-

stantiated by the more recent investigators above cited.

The whole subject of sporozoan parasitology is still in its infancy; and we have much to learn ere we can definitely discuss any of the interesting problems suggested by this line of work. The knowledge of the morphology and biology of these parasites is still largely undetermined, even in the case of the best known sporozoa of comparative pathology. Notwithstanding repeated efforts, we are still practically unable to isolate and cultivate in artificial media, these peculiar organisms. Thanks to the patient work of comparative pathologists, however, we are coming to a better understanding of the life history of the pathogenic sporozoa; and the immediate future doubtless has in store for us a method of artificial cultivation. What OGATA has accomplished in the cultivation of certain of the larger protozoa will soon be applied to the sporozoa.

With these facts in mind we must regard as very suggestive and very promising the researches into the sporozoan character of the acute exanthemata. When it is remembered, for instance, that such a well known protozoan as *Heteromita* has been repeatedly observed, in its multiple fission, to form spores so minute as to be almost beyond detection with the most powerful lenses of the present day, then it will not appear so remarkable that many of the protozoan parasites have escaped detection. With this well established phenomenon in mind it would not be difficult to account for the fact that up to the present time no visible organism has ever been detected in the vaccine virus, with the clinical effects of which we have been so long acquainted. The "resisting spores" of smallpox doubtless exist in so minute a form as to be ultra-microscopic.

HAS VACCINATION ANY THERAPEUTIC EFFECT?

PROFESSOR COMBEINALE furnishes the *Bulletin Médical du Nord* his conclusions as to the necessity of re-vaccination and, incidentally, as to the effect of vaccination performed during the incubative stage of smallpox. These conclusions are founded upon his observation of 330 cases of the disease during the epidemic of 1891–92 at Lille—89 of the cases being children under 12 years of age. He concludes that: 1, it is necessary to re-vaccinate children every five years; 2, adults can be assured of real and continued immunity only when they, too, are re-vaccinated every five years; 3, in case of failure of vaccination in children it must be repeated every year until successful; 4, re-vaccination during the stage of incubation does not influence the course of the disease any more favorably than a primary vaccination—meaning, it is assumed, that the vaccination performed on a previously vaccinated person after the disease had been contracted, would have no influence. Unhappily, the subjects involved in these conclusions promise to be of more than passing interest to the profession in this country during the next few months. As indicated in last week's JOURNAL, there is a general apprehension among health authorities of an epidemic prevalence of smallpox this coming winter.

Passing over his conclusions with regard to the necessity of re-vaccination, it may be worth while noting that COMBEINALE's fourth conclusion as to the inutility of re-vaccination during the incubative stage of smallpox does not accord with that of the late DR. RAUCH on the same subject. In an argument advocating the use of humanized, rather than of bovine, virus —on the ground of the greater promptness and certainty of action of the former—DR. RAUCH asserts most positively the therapeutic value of vaccination as well as its prophylactic power[1]. His language may be profitably quoted in this connection, when opportunity for the application of its lesson may be afforded in the near future. "Thus," he says, "if a patient be vaccinated during the febrile stage and the vaccination progress normally—there being nothing antagonistic between the two diseases, variola and vaccinia, to prevent such normal progress—the areolar stage of vaccination will be reached before the dangerous tenth day of the variolous disease; and, as has been repeatedly witnessed [during the epidemic of 1881–83] the graver disease will be aborted, jugulated or materially modified." As an illustration of this abortive power of vaccination he cites an instance (MARSON's?) which, he asserts, was almost exactly paralleled in the epidemic under his observation: Of three children, equally and simultaneously exposed to a case of smallpox, one had been vaccinated and the other two were unprotected; the former escaped entirely, but the others in due time exhibited the usual symptoms of the disease; one of these was vaccinated immediately on the appearance of the symptoms, but the other remained unprotected; the disease seemed equally severe in both up to the eighth or ninth day, when the vaccinated child began to improve, the pustules dried up, no secondary fever followed and the case went on to convalescence; "in the unvaccinated child the disease runs the usual course of unmodified smallpox, and during the tenth to twelfth days—the period of greatest mortality, and when the other child is entirely out of danger —this one has about equal chances for and against recovery."

Finally, in a study of 1,931 cases of the disease during the epidemic of 1881–83—nearly six times the number observed by the French writer—DR. RAUCH found that, whereas, the average duration of all cases

[1] The Relations of Smallpox and Vaccination. By John H. Rauch, M.D., Springfield, Ill., 1884.

non-vaccinated, vaccinated and re-vaccinated, was 20.8 days (rising to 29.8 days in the non-vaccinated), the duration was only 13.8 days in those re-vaccinated after exposure, *i.e.*, during the stage of incubation. Not only this, but the veteran American sanitarian has shown that, while 93.18 per cent. recovered of those who were vaccinated or re-vaccinated *before* exposure only, 94.20 per cent. recovered of those vaccinated *after* exposure only; and all cases—sixty-eight in number—recovered who were vaccinated both before and after exposure. It was upon these results that DR. RAUCH based his apothegm: *It is never too late to vaccinate.*

CORRESPONDENCE.

Cataract Extraction, an Office Operation.

Reply to Dr. Kollock's Letter.

ST. LOUIS, MO., Sept. 18, 1894.

To the Editor:—I do not usually take public notice of such an article as the one by Dr. Kollock, of Charleston, S. C., in the JOURNAL of September 1, condemning the methods of dealing with cataract patients as practiced more or less by Drs. Cheatham, Le Mond, myself and others. I might add, *many* others; but the wide circulation of our JOURNAL and the severity of the criticisms calls for a word of defense for myself, as well as for the other gentlemen named, for the quite large number who have not as yet published their experiences with this method and are conscientiously and satisfactorily making use of it. Dr. Kollock openly condemns the procedure without offering any well founded reasons for so doing beyond mere opinion.

Such a course as this is not conducive to the advancement of science in any of its departments, but rather is the spirit that checks progress. According to the views expressed by Dr. Kollock any one who departs from the "well beaten path" should fall under the condemnation of all "conservative surgeons;" and, he suggests, become liable to suit for malpractice,—a spirit of uncharitableness in the profession that we had hoped was long since extinct. It is that spirit which has in all times opposed true progress. Any procedure in surgery that is fraught with danger is sure to bring its own condemnation and lead to its abandonment. If I am a "progressive and intelligent ophthalmologist," as the gentleman gives me the "honor" (?) of being, I certainly would not tenaciously hold to and advocate a method that contained any essential elements of danger. About eight years' experience with the method in question on my part, and fully nine years by Dr. Cheatham certainly ought to have shown us the danger, if danger there be, in it. Every operation on the eye is attended by some risk, and we can not always foresee where the point of danger lies, but we usually see it afterward.

I have shown in former articles on this subject that the great secret of success in cataract extraction lies in a well performed and smooth operation done under strictly aseptic rules, and followed by a careful adjustment of the lids over the globe (for which I prefer a strip of plaster), and interfering as little as possible until the corneal wound has united. Hardly any one will gainsay this proposition. As to the control of the patient after the operation the views of men of large experience radically differ, but one thing must be noticeable to every one who has followed this subject, and that is, the old method of bandages, dark rooms and strict confinement in bed are being rapidly abandoned by the ophthalmologists of to-day. Nothing ever brought me more expressions of gratitude from my patients than the abandonment of dark rooms. Next to this came the omission of bandages; and last, the greater liberty allowed my patients after extraction. In my hands these departures from the stereotyped methods have proved blessings to the afflicted, but they each and severally have suffered opposition and criticism by the profession.

Ours is an experimental science, and the conservative experimenter, not the reckless adventurer, is the one who makes valuable improvements in our methods of dealing with disease without sacrificing his patients.

In adopting cataract extraction as an office and dispensary operation I led up to it by very cautious steps and well matured convictions. My several contributions on this subject show it. When fully convinced of the safety of the procedure I began to advocate it on the ground of its many advantages. The first question to determine its claims for adoption is, *Is it safe?* To whom should we look to answer this question? To the men who have made repeated and fair tests of it, or to those who have never tried it, perhaps never saw it used, and who, as the Western politician would say, are "constitutionally agin it?" For information on this subject I would refer Dr. Kollock and all who think as he does to the reports of Dr. Cheatham, myself, and to the experience of others whose names I could give. No man who has had the courage to rise above "popular opinion" and make a test of it has ever after had any fears of performing an extraction in his office and allowing the patient to go home. The invariable experience has been, in so far as I know, *it is eminently satisfactory and the results are as good as are obtained when the operation is performed on the bed where the patient is to lie.* Dr. Cheatham reports *better* results with his fifty-three cases, and I have certainly had better results since adopting it, but I attributed it to greater dexterity in operating. If the method is safe, then what are the advantages that can be claimed for it?

First, the appointments of a well arranged office or dispensary furnish much better facilities for performing a neat and skilful operation than the home of the patient. These advantages are of much importance. This is particularly the case with poor people who constitute the great majority operated on. As has been already suggested, a well performed operation is far more important to success than the pose of the body afterwards. The element of time can not be ignored by the busy surgeon, and the saving in this particular is very great, especially in a large dispensary practice. The extent of territory from which dispensary patients are often drawn in our large cities makes this a very important item. The chief surgeon can do the operation and one of his assistants can visit the patient and render the necessary after attention. Such important work should not be given out to inexperienced operators. The poor are entitled to the same skill as the rich, for their sight is just as valuable, and to them more important. See what Dr. Baker has to say in his address as President of the Section on Ophthalmology, on the subject of who are qualified to operate for cataract. Many dispensary patients will not suffer any one but the chief surgeon to operate on them, and his services become necessary. Certainly by far greater opportunities for success are given the patient skilfully operated on at the dispensary and permitted to go home, than would be given him if some unskilful operator were to go to his home and perform the operation. By carrying his parody of reasoning a little further, Dr. Kollock would render every surgeon liable to suits for malpractice in the legitimate pursuit of his calling. Every operator has some methods peculiar to himself that others object to, but which he honestly prefers. Why not grant him the privilege of exercising

his personal judgment and discretion if he is so entitled by reason of his experience, learning and observation?

In conclusion, I will only say: If I have sown "dangerous seed" I may look out for thorns and thistles, but so far it has been my observation, and the observation of many others who have adopted the procedure, that the extraction of cataract as an office or dispensary operation has borne only *good fruit*. I would humbly request Dr. Kollock to make a test of it before he writes another criticism. If he does a neat operation, other conditions being favorable, I guarantee a good result.

T. E. MURRELL, M.D.

Emasculation and Ovariotomy.

HAMILTON, OHIO, Sept. 17, 1894.

To the Editor:—The article on this subject by Dr. Robert Boal, in your issue of September 15, leads me to think that the belief in castration for crime is orthodox in the medical ranks. In the Cincinnati *Lancet-Clinic* of August 25, I protested against that proposed punishment, and up to date I have not found an article or editorial on that question which was at all heretical.

The castrationists seem to forget that after castration society deals with a eunuch, not with a man; and while lauding the virtues of the lazy, fat, oriental eunuch, whose ideas of individual rights are almost *nil*, they overlook the fact that our emasculated product, before deprived of virility, was a desperate, vicious person who had a very clear conception of rights, even though he had no regard for them. It is very doubtful if the American eunuch would be the docile, useful thing that his Asiatic prototype is. On the contrary, there are many reasons why he would become a dispenser of dynamite. There seems to be some causal relation between over-government and explosives. At least they are found together.

If castration and ovariotomy are begun, where will be the stopping place? If the morally weak and undeveloped are to be unsexed, is it not consistent to do likewise to the physically deranged—the puny, the weak, the tuberculous? If an affirmative answer is given, then it may be asked who can pose as the infallible arbiter who will say when operation is needed? Difficulties would here arise which no mortal judge could cope with. It would be impossible for a supreme court made up of Galtons and Ribots to say what would be the offspring of any given parents. This nice old couple has been sorely troubled by a vagabond son. Should that couple have been sterilized? Remember the proverbial wickedness of preachers' sons. On the other hand, remember that Australia was partly colonized by convicts; and that waifs from the metropolis often do well when taken to the country.

Rights imply duties. My right to talk, to move, to live, in short to exercise my faculties, provided they do not interfere with the like faculties of others, implies that it is the duty of all men not to infringe on my rights. It may therefore be questioned on the grounds of equal freedom, the alleged right of the community to hang, to imprison in some barbarous place, or to castrate. That the criminal should be restrained, and that society should be protected, no sane man will deny; but no humane man will for a moment think of anything but ultimate reformation of the evil-doer, and that, without the destruction of a faculty.

If the criminals' rights are denied, one can consistently say that one has no duties to them. Such an attitude is not fair to the criminal; while to free men it is demoralizing, inasmuch as it tends to make them oblivious to the great ethical law—the law of equal freedom to all. That castration would not accomplish what is expected of it, and that it would encourage cruelty, despotism and anarchy, I have attempted to show in my article mentioned above.

Now if castration *must* be tried to see how it works, may the official castrator not forget some prison officers, skilled in torture; some policemen, who believe their efficiency proportionate to the number of their arrests; some judges, who stupidly say, "thirty days," and who really imprison for poverty; some commissioners, who perpetuate our vile county jails—"compulsory schools of crime at public expense"; and last but not least, some tenement-house owners.

Castration and ovariotomy as penalties for crime, can not be reconciled to any ethical system worthy the name. It savors of the ethics of the forest, the sea, and the air, best shown by the wolf, the shark, and the dragon-fly.

Many crimes have been committed in the name of law and religion, but here is a proposed one under the guise of science. That science will do more than religion or law to make men better, I really believe; but it does not appear to me to be scientific to attempt reformation by deformation; or to try to insure the survival of the fittest by blunting the moral sense of the whole community. Surely it is a greater triumph to guide the morally diseased to health, or even to try it, than to change their natures by destroying hopes and powers.

Some day the story of humanity's struggle with brutal punishment will be written, and I fear that it will not reflect the credit on the present medical profession that the history of most reformers has.

In conclusion let me call attention to the writings of that much maligned man, Gov. John P. Altgeld. His criticism of the penal machine would not inspire the castrationists.

Yours very sincerely,

MARK MILLIKIN, M.D.

The Oldest Doctor.

PULLMAN, ILL., Sept. 17, 1894.

To the Editor:—I observe that in the JOURNAL of September 15, Dr. Corson, of Montgomery County, Pa., is declared the oldest physician in the United States, which, if the date of his birth given is correct, is doubtless true.

Dr. Lewis Dyer, residing in Du Quoin, Ill., was born Feb. 24, 1807. He graduated in medicine in 1828, was Surgeon of the Eighty-first Regiment Illinois Volunteers from August, 1862, to the close of the war, and is doubtless the oldest army surgeon living in the United States, unless Dr. Corson was in the army.

Dr. Dyer is in full possession of his mental faculties, does some consultation practice, reads the journals, and takes great interest in the current events of the day.

I called on him a month since, and found him reading the history of the late war, and on his table were maps and charts of campaigns and battlefields, which he was consulting.

JOHN MCLEAN, M.D.

Objects to Animal Extracts.

CLINTON, IOWA, Sept. 12, 1894.

To the Editor:—In the issue of August 25, appears an advertisement of the Columbian Chemical Company setting forth the virtues of "Ovarine," presumably an extract of pigs' ovaries, with quotations from Professor Hammond and others, having reference to the healing qualities of animal extracts in general, and this one in particular. Then follows a letter from E. Houston, M.D., who has boldly put "a highly intelligent lady, aged 26 (presumably married) on ovarine as a steady diet, which he proposes to "continue till she becomes pregnant," when he promises to report further.

In the same issue, Armour & Company offer to send to

any member of the profession samples of desiccated thyroids which the enterprising firm claim has produced most gratifying results. Then follows some unscientific and misleading statements asserted to have been made by Prof. Solomon Solis-Cohen.

I would suggest to the Columbian Chemical Company, and Armour & Company to enlarge their field of usefulness by furnishing the regular profession with tr. uteri, testicular fluid, tablet triturates of perineal gland, elix. gray matter (avoiding an infringement on "cerebrin") granulated liver, dosimetric granule of appendix vermiformis. Finally, I would ask the publishers if it is not time to expunge such "rot" from the advertising columns of a journal which claims to be an exponent of the best there is in scientific medicine to-day? Very truly yours,

ALBERT REYNOLDS, M.D.

A Case of Abortion.

WHEELING, W. VA., September, 1894.

To the Editor:—The following case terminated so happily that I feel like recommending the method as much more safe than that employed in a case recently before our court, in which the fundus of a pregnant girl had been punctured by a sound with fatal result.

Mrs. A., age 25 years, mother of two children, last menstruated August 5-8. At 10 A.M., September 14, thirty-seven days after last date she introduced the closed end of a common wire hairpin into the cervix, in the effort to produce an abortion. It slipped from her fingers and disappeared beyond her reach. Eleven hours later I saw her, and no sign or symptom of local disturbance was present. My index finger, inserted as far as possible into the cervix, felt no foreign body. I concluded that the woman was so agitated during her criminal effort that the pin had dropped into the vagina, and afterwards escaped; or, that she was lying to me in the hope of inducing me to explore the uterus in search of a hairpin and to deliver her of a fetus instead. I, therefore, concluded to defer action and instructed the woman to send for me if certain symptoms presented.

September 25 at 10 P.M.—Twelve days after the hairpin was said to have been lost I was called again and found that an abortion had occurred an hour before. This history was elicited: In the afternoon of each day since my former visit, a little bleeding had occurred, but none at other times. No pain had accompanied this. Bleeding was continuous on the 23d, 24th and 25th. On the last day patient walked three-fourths of a mile to spend the day with a friend, and walked home in the evening. Bleeding was free during the afternoon, and at 7 P.M. pain set in for the first time. Two hours later the abortion occurred.

On examination, I found the cervix just sufficiently open to admit the index finger. A portion of the ovum remained and lying perpendicularly I felt the hairpin, the open ends downward. After several failures, I at last grasped both ends of the pin with a uterine dressing forceps, and removed the instrument of death. From the rounded end to the open extremities, it measured two and a quarter inches. No damage to the uterus seemed to have resulted from a twelve days' presence of its unusual tenant, and the patient had an uneventful convalescence. S. L. JEPSON, M.D.

BOOK NOTICES.

Young's Orthopedic Surgery; A MANUAL OF ORTHOPEDIC SURGERY, FOR STUDENTS AND PRACTITIONERS. By JAMES K. YOUNG, M.D., Instructor in Orthopedic Surgery, University of Pennsylvania, Philadelphia. In one octavo volume of 446 pages, with 285 illustrations. Cloth, $4; leather, $5. Philadelphia: Lea Brothers & Co. 1894.

There will be found little that is new in this book; it is apparently a book written as a text-book for students, from which they may memorize the general principles of the orthopedic art. What is in the book is clearly stated, the arrangement is excellent, and as a rule the teaching is sound and conservative. The author in speaking of the severer operations on the foot, such as Ogston's says, p. 393: "These severe operations should only be resorted to when milder measures, after due trial have failed; for comparative relief will in the majority of cases be obtained by the milder remedies in about six or eight weeks, whereas several months are required after any cutting operation upon the tarsal bones before the foot may with impunity be freely exercised." The same wise conservatism is seen in speaking of erasion, p. 125: "The operation as thus performed substitutes in many cases the graver operation of excision, and where the bone destruction has been small it offers great advantages over the latter operation." In the treatment of pes planus the steel spring arch for the sole is commended. The use of iodoform emulsion injection is not mentioned nor are many operations described; as for all major operations the reader is referred to works on general surgery.

The Science of Vital Force; Its Plan, Division of Functions and Operative Methods in Health and Disease, an involuntary agent of nature that can be harnessed and utilized. By W. R. DUNHAM, M.D. Cl., pp. 198. Boston: Damrell & Upham. 1894.

The author says: "The object of this volume is to designate and demonstrate the fundamental principles of the science of vital force—a department of natural science that is directly applicable to the preservation of health and the treatment of disease. It is implied in fundamental principles and laws of Nature not yet recognized and presented for consideration, and is a department of science that will require a large amount of literature to illustrate its practical application to individual and national affairs. It also implies a revolution of the recognized plan and principles of a department that has been erroneously presented; a revolution as significant as was effected in the ideal change of the solar system, and the principles involved as being as capable of a positive demonstration. We allege that medical practice both regular and irregular is based on imaginary fundamental principles as unreal as was the Ptolemaic system of astronomy on theories that are as insufficient for the safe guidance of treatment, and dangerous in their application."

After this introduction the reader is at once prepared for a startling demonstration, but the author soothes us on page 16 by saying that "this whole matter is easy of comprehension when considered from a correct standpoint." The author then gives various definitions and divides vital force into four ultimate vital properties, namely, *sensibility, instinct, sensation* and *contractility*. No one can seriously disagree with the definitions and interpretations the author gives under these divisions, but there may be serious differences of opinion as to the extent and degree of "revolution" that may follow acceptance of them.

The book should be read carefully, and when so read can not fail to be appreciated. It is entertaining, novel and instructive.

Fundamental Problems, THE METHOD OF PHILOSOPHY AS A SYSTEMATIC ARRANGEMENT OF KNOWLEDGE. By DR. PAUL CARUS. Pp. 373, paper. Chicago: The Open Court Publishing Company. 1894. Price 50 cents.

This is a work, somewhat remarkable for its makeup, and as it is intended to occupy a new field in literature, it is filled with definitions of terms old and new.

Its chapters on Ontology and Positivism; Sensation and Memory; Cognition; Knowledge and Truth; the foundation of Monism; Form and formal Thought; with its survey of Kant, etc., goes to show we have to deal with an independent thinker, whether we accept his premises or not. These papers have been previously published in the *Open Court*.

There has been added an appendix in which the critics from various quarters have received an appropriate answer. How far the author has succeeded we must leave our readers to judge, simply reminding them of the words of Solomon that "of the making of books there is no end," while as a matter of fact there is nothing new under the sun. The effect of the word, "unthinkable," as used by our author is the same as inconceivable, and it seems as if much of the new philosophy consists in the invention of new forms of speech rather than the expression of new ideas. Metaphysics and psychology seem drifting into the hands of mere word jugglers.

The New Sydenham Society's Treatise on Malaria.

This volume consists of two parts, the first giving a translation of the monograph of Marchiafava and Bignami, the translation having been done by Dr. J. H. Thompson, formerly of Washington, D. C., with revisions by Dr. T. E. Charles, of Rome; the second part comprising an essay by Dr. Julius Mannaberg, translated by Dr. Felkin of Edinburgh. The original work of Bignami, in 1890, in aid of the differentiation of the forms of parasite in the different manifestations of malarial fever forms an important part of the first monograph. His opportunities led him to a study of the morbid appearances met post-mortem in malarial diseases, and he endeavored to interpret the ante-mortem systems by the knowledge gained from those phenomena. Quartan fever was found to be due to an amœba whose cycle of life is three days. The sporulation or segmentation of the amœba is complete at the time of febrile paroxysm, and much pigment forming is incident to the development of the parasite. After the paroxysm, the young amœbæ without pigment, may be seen in the red corpuscles. Tertian fever has for its parasite one whose life cycle is two days only. The amœbæ of the quartan variety discolors the red corpuscles less rapidly and less thoroughly than that of the tertian. Their movements are less lively in the quartan form. The quartan parasite has more sharply defined outlines than the other. The granules of pigment in the quartan amœbæ are coarser than in the other. The two varieties, also, exhibit differences as to the manner of their sporulation. There is a plasmodium of the quotidian intermittent, also, whose life cycle is a day. This is to be seen especially at the height of the paroxysm, one or two of the parasites occupying the red corpuscle and manifesting a power of lively movement; in shape sometimes annular and sometimes discoid. The amœbæ of the malignant forms of fever are peculiarly active in propagation and lively in movement. This malignancy is more often a sequel to the quotidian and tertian fevers, and is probably an expression of the cerebral complications created by the amœbæ and their hematic changes. In reference to malarial melanemia, Dr. Mannaberg's treatise advances the idea that the melanin is an undigested residue of the nourishment, exacted by the parasite from the corpuscle; and may, with propriety, be described as a parasitic fecal matter, although it has not been extruded or voided. The anemia of the fevers appears as an inevitable result when it is seen how largely the red corpuscle is fed upon and demolished by the parasite. The compensating power of the blood-forming organs of the system is still the unknown factor which must next be wrought out by these or other expert observers. Until this shall have been done, we will still be unable to explain why it is that certain of our malarial patients resist the anemic and melanemic symptoms so much more readily and steadily than do the other and easier victims to paludal poisoning. Regarding the laboratory work done with quinin in connection with the plasmodium, the earlier monograph gives the best summary of expert opinion and investigation.

The above facts regarding this new publication are drawn from an early notice of the book, appearing in the London *Lancet*, pp. 258–260, for August 4, 1894.

Transactions of the Texas State Medical Association.—Twenty-sixth annual session held at Austin, Texas, April 24 to 27, 1894. Pp. 450. Galveston. 1894.

The volume contains a list of the officers and members, constitution and by-laws, the minutes of the meeting, and the papers read at the session with the discussions thereon. The resolutions passed by the Association, include a resolution in favor of a Secretary of Public Health, and a Department of Health, and by formal vote it accepted the invitation of Chairman Holland to attend the meeting of the Mississippi Valley Medical Association which will meet at Hot Springs in November next. In addition to the usual section divisions, this society has a section on microscopy and pathology which judging from the printed papers is doing excellent work. The Texas transactions are yearly growing more interesting.

SOCIETY NEWS.

Mississippi Valley Medical Association.—The twentieth annual meeting of this well-known organization will be held, as previously announced, at Hot Springs, Ark., November 20, 21, 22 and 23, 1894.

The general committee of arrangements held their final meeting on September 1, in the city of St. Louis, there being present, in addition to the committee, President Scott, of Cleveland, Vice-President Strauss of St. Louis and Secretary Woodburn, of Indianapolis. Dr. T. E. Holland, of Hot Springs, presided. All of the preliminary arrangements for the meeting of the Association were completed.

Owing to the hearty coöperation of the railroads, the arrangements in this direction will surpass those of any previous meeting. On motion of Dr. I. N. Love, of St. Louis, a committee of five railroad officials was appointed to secure the desired reduction of rates. This committee consists of Messrs. Townsend, Crane, Snyder, Wishard and Ives.

The interest and enthusiasm manifested in all parts of the country concerning the meeting in November, is certainly remarkable. The fact that Hot Springs is to be the meeting place is probably an inducement for many to attend. From the large number of favorable responses to his preliminary announcement, the Secretary feels justified, even thus early, in predicting an attendance double that of any previous meeting of the Association.

Let every doctor who can possibly leave home for a few days go to Hot Springs in November. Let him take his family and his friends and not only a profitable meeting, but a royal good time will reward him for the exertion.

FREDERICK C. WOODBURN, M.D., Secretary.
399 College Avenue, Indianapolis.

Tri-State Medical Society of Iowa, Illinois and Missouri.—The third annual session of the Tri-State Medical Society will be held at Jacksonville, Illinois, Oct. 2 and 3, 1894. The Secretary is authorized to announce that papers will be read by the following gentlemen: J. H. Kellogg, M.D., Battle Creek, Mich.; Joseph Eastman, M.D., L.L.L., of Indianapolis, Ind.; A. H. Ohmann-Dumesnil, A.M., M.D., of St. Louis, Mo.; W. B. LaForce, B. S., M.D., of Ottumwa, Iowa; J. J. M. Angear, A.M., M.D., of Chicago, Ill.; Sarah Vasen, M.D., of Quincy, Ill.; Charles W. Adams, A.M., M.D., of Kansas City, Mo.; E. H. King, M.D., of Muscatine, Iowa; Heine Marks, M.D., Louis, Mo.; John Punton, M.D., of Kansas City, Mo.; Boerne Bettman, M.D., of Chicago, Ill.; F. B. Dorsey, M.D., of Keokuk, Iowa; J. F. Binnie, M.B., C.M., of Kansas City, Mo.; Anne H. McFarland, M.D., of Jacksonville, Ill.; James H. Etheridge, A.M., M.D., of Chicago, Ill.; A. A. Henske, A.M., M.D., of St. Louis, Mo.; M. P. Hatfield, M.D., of Chicago, Ill.; Ellet Orrin Sisson, M.D., of Keokuk, Iowa; B. B. Griffith, M.D., of Springfield, Ill.; Jacob Block, M.D., of Kansas City, Mo.; James A. Close, M.B., M.R.C.S., of St. Louis, Mo.;

James Moores Ball, M.D., of St. Louis, Mo.; W. M. Catto, M.D., of Decatur, Ill.; J. Fred Clarke, B.S., M.D., of Fairfield, Iowa; Geo. D. Purinton, A.M., M.D., P.H.D., of St. Louis, Mo.; S. G. Gant, M.D., of Kansas City, Mo.; D. C. Brockman, M.D., Ottumwa, Iowa; Frank Parsons Norbury, M.D., of Jacksonville, Ill.; Robert H. Babcock, M.D., of Chicago, Ill.

It is expected that Professors Senn and Murphy, will both be present and read important papers. The second day's session will be held in conjunction with the Capital District Medical Society of Illinois.

It is expected that reduced rates will be obtained on all railroads, and no doubt the meeting will be the best yet held in the history of the Tri-State Medical Society.

The Address on Medicine will be delivered by N. S. Davis, Jr., of Chicago. The Address on Surgery will be by Dr. A. V. L. Brokaw, of St. Louis.

JAMES MOORES BALL, M.D., Secretary.

810 Olive Street, St. Louis, Mo.

PUBLIC HEALTH.

Anthrax in Hides Again.—M. Lancereaux has recently made a communication to the Council of Hygiene of Paris (*Progrès Médical*) concerning three cases of malignant pustule resulting from handling foreign hides which should have been disinfected before being touched. Unfortunately, all agents hitherto employed for this disinfection, especially the sulphate of copper, cause a deterioration of the hides, so that there is a disposition to evade this requirement whenever it can be done. Schutzenberger has proposed the use of formal which is to be tried.

Deforestation as a Cause of Mortality.—Descourtis claims (*Revue d' Hygiene*) that deforestation of a given region increases the death rate. His argument is founded on the investigations of Dr. Jeaunel, who reports that the mortality in the woodless departments of France, is 1.64 per 100, while in those with forests the mortality is only .18 per 100. The proportional loss then is nine times greater in the thirty treeless departments than in the fifty-seven wooded departments. If deforestation is really the cause of the disproportionate death rate and of the diminished population in many parts of France it must be regarded with as much solicitude as the contamination of water supplies, unhealthy dwellings or the contagion of zymotic diseases.

Insanitary Condition of Havre.—Prof. Brouardel, in a lengthy paper of some thirty pages in the *Annales d'Hygiéne*, reviews the general sanitary state of the city of Havre, the hotbed of typhoid fever in the south of France. He does this by discussing the memoir of Dr. Gibert, in which it is contended that pollution of the under soil of the city is the only cause of the defective sanitary conditions which exist, while Prof. Brouardel attributes the prevalence of typhoid and other zymotics to the polluted water supplies. It is very evident that Havre is in great need of thorough sanitary regeneration, which the discordant views of these two savants only emphasize.

Source of a Typhoid Fever Epidemic.—Another outbreak of typhoid fever is traced to the dairy as its source. The little village of Montlignon near Paris has had a visitation of the disease for some months past. Dr. Hourlier, one of the attending physicians, undertook an inquiry with regard to the method of spread of the infection and communicates to *Progrès Médical* the following conclusions: The first case, origin unknown, occurred in a child May 15, who recovered. The clothes of this child were washed in a brook which flowed past a milkman's place and this milkman was in the habit of washing his milkpans in the brook. Dr. Hourlier is convinced that this man carried the disease in the milk served to his customers and directly traced to this source one case in the person of another dairyman who, being out of milk for his own use, borrowed some from the first milkman and was subsequently attacked. The village authorities have instituted vigorous prophylactic measures.

Epidemic Diseases.—Although the cholera continues to spread in Russia, Galicia, Bukovina, in certain parts of Germany and in Holland there is no uneasiness felt except as to Marseilles, the sanitary state of which, *re* cholera, causes much anxiety in the south of France. Simultaneously with the announcement in consular reports of the presence of the cholera at that port, the municipality suspended the publication of statistics as to the number and the causes of deaths usually issued. The *British Medical Journal* says there was undoubtedly choleraic disease in Marseilles early in August, and the reticence of the authorities encourages the belief that matters have not improved and that the disease is really Asiatic cholera. Elsewhere, except as mentioned, the disease gives no serious concern and the danger for this country for the present season is steadily subsiding.—Thus far the development of the smallpox incidence in the United States is mainly in the interior, and in the States of Indiana, Illinois and Wisconsin. Secretary Metcalf of the Indiana State Board of Health reports to the JOURNAL, since August 16, four cases in Kosciusko County; one in Whitley County; two in Indianapolis, Marion County; one in Marion, Grant County. The case in Whitley County and the four new cases in Kosciusko County were the results of exposure to the original case in the latter county. The first case in Indianapolis was in the person of a negro tramp who said that he had recently come from Chicago. The case in Marion was that of a lady who recently came from North Dakota and, on her way to Indiana, stopped over for a short time in Milwaukee and Chicago. The origin of the Walkerton outbreak has not been satisfactorily determined. There is a gradual increase in the number of new cases—including arrivals from other infected places—in Chicago, and an occasional case appears in the State at large. During the week a case was reported at Toluca (?) said to have been contracted in Chicago. The City Council of Chicago will be asked, immediately on its re-assembling, for an appropriation for a permanent contagious-diseases hospital. The situation is not materially improved in Wisconsin, although the Health Commissioner of Milwaukee has been sustained by the courts. A dispatch from La Crosse, dated the 17th, announces that Dr. Charles Marquardt of the State Board of Health is down with the disease at his home in that city; the disease was contracted in Milwaukee while there on official business. The disease has also been imported from Milwaukee into Racine County. There are a number of cases in Leavenworth, Kan. In Detroit, Mich., the outbreak has almost entirely subsided. New cases continue to occur in New York city, chiefly in one locality. The Newark, N. J., City Board of Health has applied for an extra appropriation of $25,000 to defray expenses incurred in suppressing the smallpox outbreak in that city.

Diphtheria at the Congress of Hygiene.—At the recent International Congress of Hygiene, at Buda-Pesth, Prof. Oertel proposed an international investigation for the better understanding of the origin and spread of diphtheria. He sketched a form which will entail an exhaustive inquiry into the whole subject, regarding feeding, exposure, climate, dwellings, surroundings, etc. He urges that by comparing the results of such an investigation, carried on in Europe and in America, some more satisfactory knowledge may be obtained than that which we now possess.——Prof. Löffler said that the specificity of the diphtheria bacillus and

the value of its recognition as a means of diagnosis in doubtful cases are now generally recognized, and he strongly advocated the appointment of bacteriologists in every district, to whom should be committed the duty of making the necessary examinations.——Dr. J. S. Billings, for the American Committee, showed by a series of maps that in 1880, out of every 1,000 deaths from known causes 78 were due to diphtheria, whereas in 1890 only 49 per 1,000 were ascribed to that disease. In the rural districts of America the proportion in 1880 was 83 per 1,000, and in the cities and towns it was 57 per 1,000; but in 1890 these figures had fallen to 49 for the country and 50 for the city. This diminished mortality was attributed chiefly to the recognition of the contagious character of the disease and the consequent enforcement of disinfection and isolation. The results of the system of bacteriologic examinations instituted in certain cities of the United States showed that 80 per cent. of the cases usually returned as croup were true diphtheria.——The report of the British Committee, submitted by Dr. Edward Seaton, dealt with the increase of the disease in the United Kingdom during the twelve years ending in 1892, certain features of which suggested that the spread of diphtheria was governed mainly by the habits of population. The great change to be noted in these habits is the influx of country population into towns and the collection of children in schools. It was urged that the education of the public in systematic encouragement of scientific observations and research in matters connected with the public health is the most pressing need of the day.——The importance of the early recognition of the disease, which could only be attained by the systematic observation of the throats of children, was the theme of the report of the French Committee. M. Roux, of the Pasteur Institute, spoke strongly in favor of the antitoxin treatment of the disease and of prophylactic inoculations; he stated that the use of Behring's serum had reduced the mortality from diphtheria in one of the Paris hospitals from 40 to 25 per cent.

NECROLOGY.

Chas. H. Dare, M.D., Bridgeton, N. J., died August 25. He was for seventeen years County Physician, and was Surgeon of the Fourth New Jersey National Guard.——Jacob Newkirk, M.D , Binghamton, N. Y., died August 13, aged 89. ——Charles H. Williamson, M.D., formerly a surgeon in the U. S. Navy, died at St. John's Hospital, Brooklyn, N. Y., in the sixty-ninth year of his age. He was a native of Portsmouth, Va., and a graduate in medicine from the University of Pennsylvania. He had served at several stations as naval surgeon, prior to the breaking out of the late war, but he went with his State when Virginia dissolved her allegiance to the Union. He received a Confederate commission and served as naval surgeon, upon the *Charleston* and in other capacities. After the war Dr. Williamson took office under the Pacific Mail Steamship Company, not only as surgeon on the vessels sailing to and from New York, but also as a resident employé of the company at the harbor of Panama. In this latter relation he spent nearly the whole of the last ten years of his life. A widow and two daughters survive him.

MISCELLANY.

Frontier Medical Association.—The Frontier Medical Association of Canada, which embraces the Counties of Huntingdon, Chateauguay and Beauharnois, held their annual meeting at Valleyfield the election of officers resulting as follows: President, Dr. Sutherland, of Valleyfield, reëlected; First Vice-President, Dr. Wells, of Huntingdon, reëlected; Second Vice-President, Dr. A. G. Hall, of Ormstown; medical Council, Dr. Grouix, of Valleyfield; Dr. Monk, of Rockburn, and Dr. de Moulpied, of Hemmingford; Secretary and Treasurer, Dr. C. Marshall, of Huntingdon.

Latest Quotations in the Diploma Market.—A London correspondent says the trade in bogus American academic degrees, which Labouchere broke up by his exposures in London *Truth*, is again booming. "England is a peculiarly rich field for this sort of swindle, for John Bull's pet weakness is his ambition to write a long string of letters after his name. The latest quotations for degrees from the bogus American University are M.D., or LL.D., $150; any other degree, $125."

Actinomycosis in Finland.—Dr. Borsdorff has been able to collect only eighteen cases of actinomycosis occurring in Finland up to the present time. Of these, ten occupied the face and neck; one, the lungs and thorax; seven, the abdomen, including two of actinomycotic perityphlitis. Nine of these cases were cured, seven died and two are still under treatment. Borsdorff thinks that operative treatment is the most effective and, perhaps, the only certain means of cure—at least in the more chronic cases.

Statue to Marion-Sims.—On November 13, prox., the anniversary of his death, a massive bronze statue of James Marion-Sims, M.D., LL.D., will be unveiled in New York city. The statue will be erected on the north side of Bryant Park, where a completed pedestal of dark granite marks the site. In making this announcement it is said that this will be the first instance of such a tribute being paid to a member of the medical profession in this country; "but even this monument will not be as fine as the Woman's Hospital of which he was the founder."

Poisoning by Crayfish.—Crayfish poisonings must now be added to the long list of those caused by lobsters, mussels, shrimps, crabs and oysters. Cases have recently been reported in *Progrès Médical* from four different localities in France—the most serious at Geaudelize, where forty guests at a wedding feast after partaking of a bisque of crayfish were seized with vomiting and violent colic. Although medical aid was soon at hand many of those attacked succumbed. The supplies in all cases had been obtained at Cologne, which is the chief market for this article of food.

Conviction Can Not Stand.—A corollary to the decision of the Supreme Court of Montana in the case of State v. Kellogg, referred to in the Journal of August 18, pages 288 and 289, is found in another decision of that court, entitled the same, but rendered June 4, 1894. Here the court holds that when a physician's license is revoked by the State Board of Medical Examiners, and, pending an appeal, through the district court, to the Supreme Court, the physician is convicted of practicing medicine without a license, the latter judgment will be set aside after the Supreme Court has reversed the one revoking the license, for the reason that there is nothing to support it.

Flies as Contagion Carriers.—Travelers in Egypt notice the large number of blind persons and those afflicted with diseases of the eye. In pus collected from the conjunctiva, gonococci or other microbes are frequently found—sometimes both. A very potent agent in the dissemination of these diseases is to be found, according to Lucien Howe (*Rev. Int. de Bibliog. Méd.*) in the flies which infest Egypt in myriads. He has observed that when these flies walk over gelatin, bacteria develop in their tracks, and notes that the Bedouins of the desert, where few flies are found, rarely

have any disease of the eyes. Dr. Howe neglects to mention, however, another important cause of this class of diseases, namely, the irritation of the conjunctiva from fine particles of sand.

An Ambulance Surgeon Murderously Assaulted.—Dr. Thomas Garvey, ambulance surgeon to the Harlem Hospital, New York City, came very nearly losing his life while removing a desperate patient to the hospital for treatment. The man, who was partially intoxicated, and suffering from a dislocation of the humerus, drew a pistol and fired on his surgeon while they were in close quarters in the removal wagon. The bullet took effect in the right shoulder of Dr. Garvey, causing a painful but not serious wound. Before the man could follow up his murderous attack, the surgeon threw himself forward on the man and disarmed him. The man subsequently stated that he mistook the surgeon for an officer who had him under arrest. Whatever the motive of the man may have been, his missile went very near to blotting out the life of a worthy young surgeon.

To Abolish the Coroner.—The Constitutional Convention now in session for the State of New York has voted to strike out the office of coroner, as a constitutional position, by a vote of ayes 97, nayes 43. This is one step in the direction of giving to New York the system of medico-legal experts, such as has been possessed by Massachusetts for many years. The ratification of the action of the Convention must be obtained, at the polls, by the general vote of the people of the State. There seems to be a strong presumption that the revised constitution will be adopted; at all events, the medical societies, such as the Academy of Medicine, the medico-legal organizations and others, that have been fighting for years to do away with this relic of barbarism, will have their sympathies warmly enlisted to work for the new constitution in order to secure this reform, if none other.

Surveillance of Mineral Waters.—The growing consumption of mineral waters in this country and the entire absence of official surveillance of the business lend interest to the recent action of the Academy of Medicine of Paris, in the adoption of the following resolutions: 1, the Academy is still of the opinion that certificates for all mineral waters that are charged and bottled should be withheld; 2, certificates should be granted only when the water in question contains no pathogenic bacteria; 3, the Commission on Mineral Waters shall be furnished all the apparatus in the laboratory of the Academy necessary to study any water for which a certificate is asked, to ascertain its freedom from microbes and the stability of its composition. In times of epidemics, when the populace has recourse to mineral waters instead of the usual supply, the Academy will assume the additional duty of pointing out the danger of drinking these waters indiscriminately and of insisting that none be sold unless they have been examined and certified to be innocuous.

The Earliest American Symphyseotomies.—Dr. R. P. Harris, of Philadelphia, writes to the New York *Medical Journal*, August 25, that he has found three unreported symphyseotomies that antedate that of Dr. Jewett, of Brooklyn. These were done in 1880, 1884 and 1889, the two latter operations being supported by sworn evidence. He has reason to believe that the earliest American symphyseotomy was done in 1880. These three early cases will be duly reported so soon as he is convinced that they were actually performed as alleged. In not less than two cases studied out by Dr. Harris, he has been compelled to certify that the claims of operators have been factitious. One of these had been publicly, though mistakenly, credited as the first of its kind. Dr. Harris will continue his detective work until the truth shall have been brought to light. The operation of Dr. Jewett will probably prove to have been not earlier than the fourth.

A City Home for Epilepsy.—The ideal location for a retreat for the care of epileptics is in the country rather than in the city. The satisfactory working of certain colonies or farms, both abroad and in America, has been abundantly proven. These charitable undertakings are, for the major part, in their infancy and are not sufficiently numerous to make it possible to do away with city homes for the unfortunates of this class, and it will be a long while before they can all be provided with ideal protection. A new charity has been organized at Brooklyn, known as the Non-Sectarian Hospital and Home for Epileptics, having accommodations for forty inmates. The medical staff is large and competent, embracing among others the names of Drs. D. Simmons, C. H. Schapps, Charles Shepherd and W. G. Preston. The support will be entirely that yielded by charitable citizens and physicians. The Home will be located at 1038 Green Avenue.

Neutralizing Serpent Venom.—M. Tricard, of Martinique, has lately experimented on the effects of different agents in neutralizing the venom of serpents. The experiments were made on the smaller animals—rabbits, rats and pigeons—he not having been able to obtain any dogs. The drugs used were a solution of iodin, permanganate of potash, chromic acid and chlorid of gold. He concludes (*Arch. de Méd. Nav.*) that we have drugs capable of completely neutralizing this venom and that chlorid of gold is the most efficacious and the most easily managed. Many injections must be made and it does not suffice to make them in the subcutaneous cellular tissue alone; some must be made in the muscles at a point below where the fangs have penetrated. It will be remembered that Prof. Daniel Brainard, of Chicago, many years ago proposed tr. iodin as an injection in cases of snakebite. Successful experiments on animals were repeatedly made in the surgical amphitheater.

Anecdote of Von Helmholtz.—Although the late Prof. von Helmholtz was among the most popular instructors of the University of Berlin, he was not the kind of man of whom many anecdotes are told. The following, however, has found circulation: A number of years ago the Professor attended a celebration in honor of the birthday of Prof. Bunsen at Heidelberg. The toast of the evening was responded to by Prof. Kirchhof, one of the best known men at the time in Heidelberg, and the associate of Bunsen. He ended his address with, "Long live Bunsen." The cheering had not ended when Prof. Helmholtz stood up and said: "Bunsen must indeed be immortal when even the graveyard (Kirchhof in German means graveyard) wishes him long life." Von Helmholtz was a man of remarkable appearance and his eyes are said to have been among the most beautiful and penetrating ever set in a human head. A few years ago his favorite daughter was married to Dr. von Siemens to the great joy of von Helmholtz, thus uniting two famous houses. She is an unusually clever woman.

CO_2 and Mental Activity.—Elaborate atmospheric determinations, made four times daily during the last nine years in the various rooms of the Walker building of the Massachusetts Institute of Technology, have now been tabulated and made public. An increase of about 0.5 parts over the ordinary proportion of carbonic acid in the outer air is found in 10,000 parts of the air in the rooms when empty, and this increase is attributed to decomposition of the organic matter present in the flues, floors and walls. The air of those parts of the building which are open and in which people are constantly moving about shows about five parts of car-

bonic acid in ten thousand as an average of all tests for eight years; while the air of the lecture rooms, when occupied, has shown from six to eight parts, rising to ten or twelve parts in the larger and more crowded rooms, according to the outside weather. The lesson for the medical college is contained in the statement that students are capable of working well in a clean room with about seven parts in ten thousand of carbonic acid; a greater degree or amount than that is sufficient to cause dullness, and anything in excess of thirteen parts is declared to be an almost insuperable obstacle to the full acquisition of knowledge by the classes.

Rats and the Bubonic Plague; The Epidemic at Pakhoi.—A writer from Pakhoi reports that that place has experienced a very fatal incursion by the plague,—equally so with Hong Kong. The letter says: "We are thankful to note that the epidemic is now abating. There has been noticed here a curious fact connected with the disease—the susceptibility of rodents to what is believed to be the malignant miasm that causes the disease. These rats rush wildly from their holes into the houses and quickly die, while unaffected animals have often been seen to leave the stricken town altogether." The mortality among the natives at Pakhoi has been very high, so that at times the supply of coffins has run short. Drs. Horde and Colborne have been enabled to report recovery in regard to some of their cases. Death commonly takes place on the fourth or fifth day after the fever sets in. The disease selects the filthiest and most densely crowded sections of the town, and attacks both old and young. The hospitals that are conducted by the English and Americans were, as a rule, closed against the reception of plague cases. Pakhoi has suffered from more than one epidemic of the disease in recent years and it is held by some that it was introduced into Hong Kong from the former place. In the *Lancet*, there is a note to the effect that at Hong Kong many thousands of rats have been found to have died. No other animals appear to have been affected to the same extent. The older records make mention of swine and certain of the small birds as having been fatally affected.

Assumption by Corporations of Liability for Medical Services.—In a case where an employe of a corporation has sustained serious injuries, for which, however, the latter was in no way responsible, the Supreme Court of California says, in a decision rendered June 13, 1894, (Fraser v. San Francisco Bridge Co.,) the company might have refused to assist or care for him in any way. But he had been a faithful servant of the company, and was injured while performing his duties as such. He was also a poor man and needed attention and care, which he had no means to procure. Under such circumstances it adds, there would seem to have been some moral obligation resting on the company to furnish to him such assistance and care as were necessary to relieve his sufferings, and if possible, to save his life. This obligation being recognized by officers of the company, it should be held to constitute a sufficient consideration for a promise made by the president in behalf of the company to pay a reasonable compensation for the medical services for the employe. When it paid one physician $200 for his services, and offered to pay to another $250 for his services, it recognized, approved and confirmed the authority of its president to write the letter and make the contract therein expressed. It ought not, therefore after the services were rendered in reliance on the letter, to be permitted to repudiate it and deny all liability thereunder. The words: "We reserve to ourselves the right to determine what is reasonable," being used, this was a reservation which the company, under such circumstances, had a right to make. This being so, the physician last referred to was entitled to recover only the amount offered him by the company, and not the sum awarded him by the jury.

Constitutionality of Ordinance to License Professional Men.—The Supreme Court of Montana pronounces constitutional, in the case of the City of Bozeman v. Cadwell, decided June 18, 1894, the following ordinance of that city: "There shall be levied and collected by the city treasurer and collector from all persons engaged in the kinds of business hereinafter mentioned within the city limits of the city of Bozeman a license tax as follows: . . . . 3. From each professional man, before practicing as such: All lawyers, dentists, physicians, surgeons, and all other professions, insurance agents, real estate agents and notaries public, shall pay a license of one dollar ($1) per quarter. . . . 4. Any person or persons, corporation or association who shall transact any business, trade, occupation or profession, for which a license is required by this ordinance, without first obtaining the same, shall be deemed guilty of a misdemeanor, and upon conviction, shall be fined in any sum not less than ten dollars ($10) nor more than one hundred dollars ($100), together with the costs of the prosecution." This was, however, it should be noticed, authorized by a provision of the act of the Legislature incorporating the city, as follows: "That the city council shall have power to license, tax and regulate . . . professional men. . . . Provided, no license shall exceed in amount one-fourth of the license required to be paid by the statute of this State for like business." It was contended that, as the city council had power to license professional men, an ordinance which licensed certain professional men, and not all, was void and unconstitutional. It was argued that to make the ordinance constitutional it should have licensed all professional men—not only lawyers, dentists, physicians, surgeons, etc., but judges, statesmen, college professors, clergymen, etc. But the Court holds that the ordinance is not open to the objection urged, as it bears equally upon all persons of a class.

Alabama's Practice Act Construed.—The Supreme Court of Alabama has reversed in a decision rendered May 4, 1894, the judgment of the Shelby County Court in what is now styled the case of Harrison vs. State. It was charged that the party named had violated Section 4078 of the Code as amended in 1891, providing that "any person practicing medicine or surgery in this State, without having first obtained a certificate of qualifications, from one of the authorized boards of medicine examiners of this State, shall be guilty of a misdemeanor, and on conviction thereof shall be fined, not less than $25, nor more than $100; provided, that this act shall not apply to any doctors or physicians now practicing medicine in Alabama, who are graduates of a respectable medical college, and have complied with the laws by having their diplomas recorded by the judge of probate in the county in which they may be practicing medicine; and this act shall not apply to any physician who has practiced medicine in this State for the past five years." The evidence showed that he had been practicing medicine in Shelby County, Ala., regularly, since 1885, and occasionally prior thereto, for some years; that he had done all of the practice in the neighborhood where he lives in said county since the year 1885; that he did this for a livelihood; that in that time, he had treated about 1,100 cases of fever, and had not lost a patient; that he attended medical lectures in Mobile, for about eleven months in the year 1887, and for about same time in 1888. The evidence also showed that he had not obtained a license or diploma or a certificate of qualification and was not a graduate of a medical college. This was all the evidence, and on it the court found the defendant guilty and assessed a fine of $25, from which finding and judgment he appealed. The only defense the defendant made to the accusation preferred against him was, that he did not violate said act, because he was exempted from its penalties by its proviso, in that he had

practiced medicine in Shelby County, Ala., for five years continuously, prior to the time when said act of Feb. 18, 1891, went into effect. The contention on the part of the State, and under which the conviction had to be sustained, if at all, was, that the word "physician," as used in the proviso of the act, did not mean the same thing as the words, "person practicing medicine," as employed in the first sentence of the act, or, in other words, that a physician was not the same thing, in the meaning of the enactment, as a person practicing medicine. Words are to be construed, the court says, in their popular sense,—the plain sense in which the people generally understand them,—unless it plainly appears from the writing in which they appear that they were intended to be employed in some other sense. Bouvier defines the word, "physician," to mean: "A person who has received the degree of doctor of medicine from an incorporated institution; one lawfully engaged in the practice of medicine." This definition does not confine the class to those who have graduated at a medical college, but includes as well, all who are lawfully engaged in the practice of medicine, whether graduates or not. The word, in its popular sense, means, "one who professes or practices medicine, or the healing art; a doctor."—Worcester. The words, "person practicing medicine" and "doctor and physician," as employed in the act under consideration, refer to one of the same class of persons, and are used interchangeably. Section 4078, before its amendment, did not contain the word, "doctor," or "physician," but the general designation, "any person practicing medicine." Construing this section, in Brooks v. State, 88 Ala. 125, 6 South. 902, this court used those words as synonymous with the word, "physician." To do otherwise in construing this act, would make it a delusion and a snare.

Lactol (Lacto-Naphthol).—Dr. Coez (*Rép. de Pharm.* 1894, vi, p. 166). Lactol is said to be analogous, in chemic composition, to benzonaphthol. It is the lactic ether of naphthol. It decomposes in the digestive organs into lactic acid and naphthol, and might prove of therapeutic value. Lactol is insipid. The author has ingested 1 gram (15 gr.) of this substance for several successive days without experiencing the slightest inconvenience therefrom. Therapeutic data are yet wanting.—*Quarterly Therapeutic Review.*

Hospital Notes.

THE SCANDINAVIAN HOSPITAL OF SIOUX FALLS, S. D., was opened September 10. The hospital affords accommodation for forty patients and the capital stock of the institution is $10,000.

LADIES HOSPITAL ASSOCIATION, BUFFALO.—Reports read at the meeting of the Ladies Hospital Association of Buffalo, September 11 give the number of patients admitted to the General Hospital during August as 162. Patients in the hospital August 1, 116; treated during the month, 278; daily average, 107; remaining in hospital, September 1, 104.

NEW HOSPITAL.—The contract for the new Catholic hospital at Anderson, Ind., to cost $15,000 was awarded September 13.

Blank Applications for membership in the ASSOCIATION, at the JOURNAL office.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from Sept. 8, 1894, to Sept. 14, 1894.

Major PETER J. A. CLEARY, Surgeon, is relieved from duty at Ft. McPherson, Ga., to take effect upon the expiration of his present leave of absence and ordered to Ft. Brown, Texas, for duty, relieving Capt. W. B. DAVIS, Asst. Surgeon. Capt. DAVIS upon being relieved by Major CLEARY, will report for duty at Ft. Brady, Mich., relieving Capt. PAUL CLENDENIN, Asst. Surgeon. Capt. CLENDENIN, upon being relieved by Capt. DAVIS, will report for duty at Ft. Warren, Mass.

So much of the ordinary leave granted First Lieut. WILLIAM F. LIPPITT, Asst. Surgeon, as is embraced in the period from August 10 to Sept. 25, 1894, is changed to leave of absence on surgeon's certificate of disability.

Major CHARLES SMART, Surgeon, and Capt. HARRY O. PERLEY, Asst. Surgeon, are detailed as delegates to represent the Medical Department of the Army at the twenty-second meeting of the American Public Health Association, to be held at Montreal, Canada, Sept. 25 to 28, 1894.

Major JAMES P. KIMBALL, Surgeon, U. S. Army, is granted leave of absence for one month, to take effect after termination of present field duty at Raton, N. M.

LETTERS RECEIVED.

(**A**) American, S., (2) San Francisco, Cal.; Adams, C. W., Kansas City, Mo.; Axtell, E. R., Denver, Colo.

(**B**) Burnett, C. H., Philadelphia, Pa.; Berliner, Paul, Berlin, Germany; Baker, A. R., Cleveland, Ohio; Beman, W. W., Bay View, Mich.; Benchel, Oscar B., Battle Creek, Mich.; Barnum, F. E., Utica, N. Y.; Baldwin, J. F., Columbus, Ohio.

(**C**) Christopher, H., St. Joseph, Mo.; Cain, J. S., Sewanee, Tenn.; Coe, Henry W., Portland, Ore.; Cobleigh, E. A., Chattanooga, Tenn.; Crawford, M. H., San Francisco, Cal.; Chailes, S. E., Boston, Mass.; Cooper, C. N., Campbell, Cal.; Cowan, C. S., Ft. Jones, Cal.; Castle, Wilmot & Co, Rochester, N. Y.

(**D**) Denison, C., Denver, Colo.

(**E**) Ewing, F. C., St. Louis, Mo.; Etheridge, J. H., Chicago, Ill.; Eischberg, Joseph, Cincinnati, Ohio; Eve, Paul F., Nashville, Tenn.; Edwards, M. Wm., Kalamazoo, Mich.

(**F**) Frost, C. P., Hanover, N. H.; Totman, D. M., Syracuse, N. Y.; Foster, Burnside, M.D., St. Paul, Minn.; Flint, Austin, New York, N. Y.; Fassett, Chas. Wood, St. Joseph, Mo.

(**G**) Gill, C. J., Riverside, Cal.; Griswold, E., Sharon, Pa.; Glover, F. R., Mt. Vernon, N. Y.; Geikie, W. B., Toronto, Canada; Gill, B. M., Dunsmuir, Cal.; Goddard, C. L., San Francisco, Cal.

(**H**) Hummel, A. L., (2) Philadelphia, Pa.; Hopkins, J. G., (2) Thomasville, Ga.; Howell, J. T., Wilkes Barre, Pa.; Howard, Jas. T., Washington, D. C.; Hodges, J. A., Richmond, Va.; Hoover, T. C., Columbus, Ohio; Hall, G. Stanley, Worcester, Mass.; Hoffman, Geo. E., Macy, Ind.; Holland, J. W., Philadelphia, Pa.; Harry, C. A., Stockton, Cal.; Hunter, J. Powell, Allegheny, Pa.

(**J**) Judkins, E. H., Clinton, Mo.; Jones, Simon N., Louisville, Ky.

(**K**) Kegan, Paul, French, Trübner & Co., London, England; Kerr & Webb, St. Louis, Mo.; Keyser, P. D., Philadelphia, Pa.

(**L**) Lord & Thomas, Chicago, Ill.; Lathrop, Thos., Buffalo, N. Y.; Loeb, H. W., St. Louis, Mo.; Linklater, S. T., Hillsboro, Ore.; Laplace, Ernest, Philadelphia, Pa.; Lea Bros. & Co., Philadelphia, Pa.; Lydston, G. Frank, Chicago, Ill.

(**M**) Mercer Chemical Co., Omaha, Neb.; Mayer, O. J., San Francisco, Cal.; Marshall, Clara, Philadelphia, Pa.; Mentel, W. F., San Francisco, Cal.; McAllister, C., Spencer, Iowa.

(**N**) Newman, H. P., Chicago, Ill.; Neff, J. H., Kalamazoo, Mich.; National Advertising Bureau, Indianapolis, Ind.

(**P**) Pense, E. J. B., Kingston, Ontario; Pardee, Charles Inslee, New York, N. Y.; Parmenter, John, Buffalo, N. Y.; Pischl, Kaspar, M.D., San Francisco, Cal.; Primrose, M., Toronto, Canada; Page, H. M. Hiram, Ohio; Purvis, C. B., Washington, D. C.

(**R**) Rand, D. R., Portland, Ore.; Raymond, J. H., Brooklyn, N. Y.; Ruttan, R. F., Montreal, Canada; Rinehart, M., Oakland, Cal.; Ryder, C. C., San Francisco, Cal.; Reed, R. Harvey, Columbus, Ohio; Roy, Dunbar, Atlanta, Ga.

(**S**) Steman, C. B., Fort Wayne, Ind.; Smith, H. E., New Haven, Conn.; Stoner, Geo. W., Baltimore, Md.; Sellman, Wm. A. B., Baltimore, Md.; Stearns, F. & Co., New York, N. Y.; Shannon, J. M., Oakland, Cal.; Stewart, F. E., Detroit, Mich.; Smart, Chas., Washington, D. C.; Summers, T. O., Waukesha, Wis.; Simonton, A. C., San Jose, Cal.; Shepard, Chas. H., Brooklyn, N. Y.

(**T**) Thayer, Charles P., Boston, Mass.; Taylor, P. Richard, Louisville, Ky.; Thomas, C. P., Everett, Wash.; Townsend, H. C., St. Louis, Mo.; Thomas, F. S. Council Bluffs, Iowa; Trimble, I. R., Chicago, Ill.; Treat, E. B., New York, N. Y.

(**U**) Ulrich, C. F., Wheeling, W. Va.

(**V**) Vaughan, Victor C., Ann Arbor, Mhich.

(**W**) Wood, Geo., Mare Island, Cal.; Wright, J., San Jose, Cal.; Wing, Elbert, Chicago, Ill.; Westermann, B., New York, N. Y.; Withrow, J. M., Cincinnati, Ohio; Wilmarth, A. W., Norristown, Pa.; Willingham, R. H., Niagora, Ky.

PAMPHLETS RECEIVED

The Rights and Duties of Citizens of the United States. By E. C. Mann, M.D., New York.

Bulletin of the Psychological Section, of Medico-Legal Society. New York.

Climatic Therapeutics in the Treatment of Pulmonary Tuberculosis. By E. O. Otis, M.D. Boston.

Tuberculosis of the Peritoneum—Report of two Cases. By H. O. Pantzer, M.D. Indianapolis.

Paralysis of the Eye Muscles. By A. Friedenwald, M.D. Baltimore.

Helbing's Pharmacological Record. No. XXIX. 1894.

Atony of the Intestine. By Julius Friedewald, A.B., M.D. Baltimore.

L' Ichthyol dans le traitement des urithrites et des cystites. By Dr. Roberto Villetti, Rome.

Ueber die Anwendung des Ichthyol. By Dr. Leopold Herz.

Psarospermoses Cutis. By Dr. von Ravogli, Cincinnati.

Syphills as a Menace to Public Health. By Wm. L. Mussey, M.D. Cincinnati.

Review of Results Obtained by the Use of Absorbable Plates in Effecting Visceral Approximation. By Wm. S. Magill, M.D. Chicago.

Bulletin de la Société Impériale des Naturalistes de Moscow. No. 1 and No. 4.

Bromo-Caffeine. Keasbey & Mattison. Chicago.

Diagnostic Palpation of the Appendix Vermiformis. By Geo. M. Edebohls, A.M., M.D. New York.

Pregnancy after Ventral Fixation of the Uterus. Four Cases. By Geo. M. Edebohls, A.M., M.D. New York.